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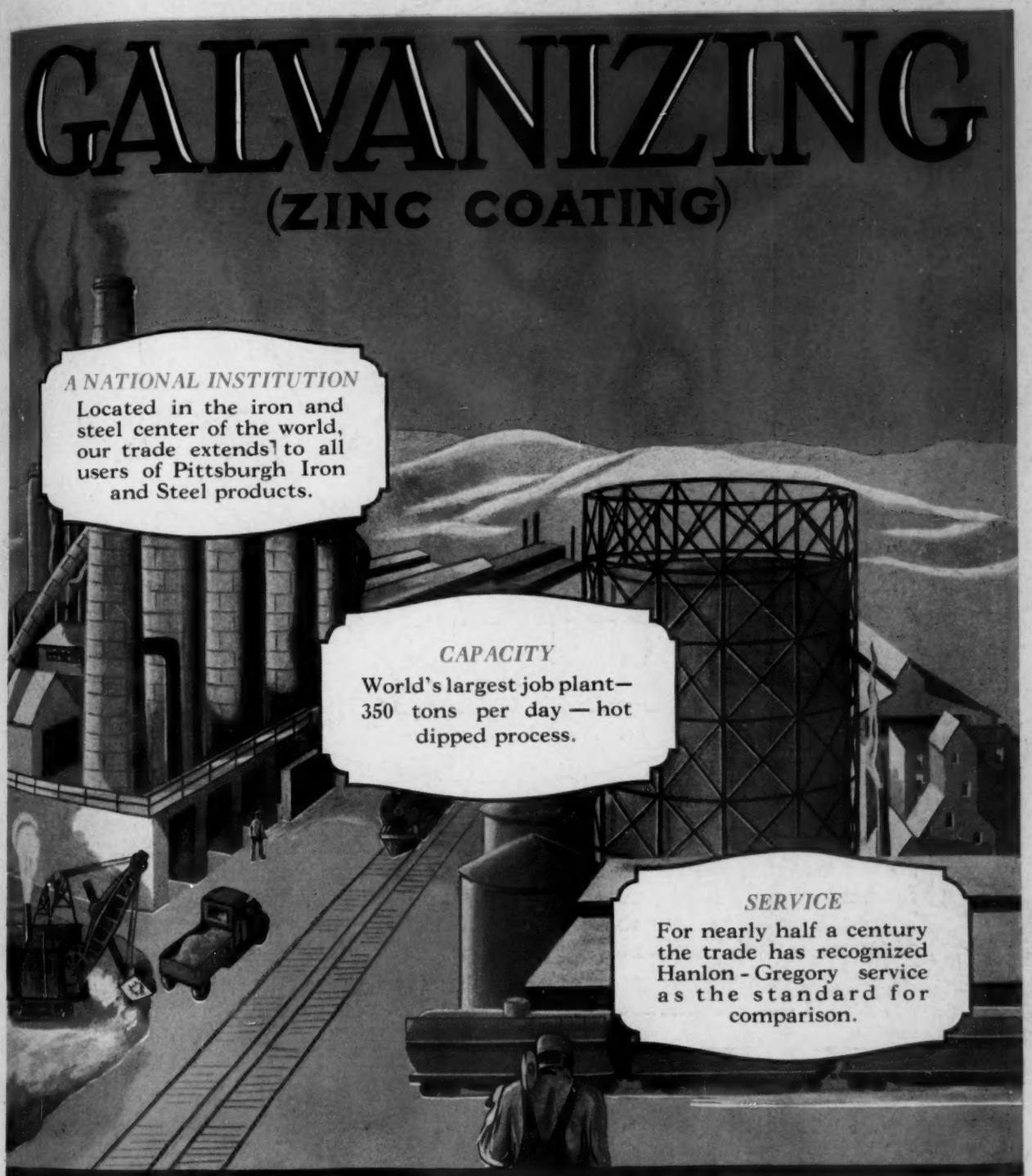
IRON TRADE REVIEW

Registered U. S. Patent Office

CLEVELAND, O., MAY 3, 1928

GALVANIZING
(ZINC COATING)


A NATIONAL INSTITUTION
Located in the iron and steel center of the world, our trade extends to all users of Pittsburgh Iron and Steel products.
CAPACITY
World's largest job plant—350 tons per day — hot dipped process.
SERVICE
For nearly half a century the trade has recognized Hanlon-Gregory service as the standard for comparison.

HANLON-GREGORY GALVANIZING CO.
PITTSBURGH PENNSYLVANIA

progress

THE Engineering Division of The Thew Shovel Company is constantly working on improvements for material handling machines. Their outstanding achievement in recent years is the Thew Center Drive, a masterpiece of mechanical simplicity and efficiency. The remarkable records of work accomplished by the Lorain Machines is proof of sheer rugged dependability of workmanship, design and material.

THE THEW SHOVEL COMPANY, LORAIN, OHIO

Gasoline or Electric Powered • Shovels, Cranes, Draglines, Backdiggers

THEW

LORAIN 60 AND 75

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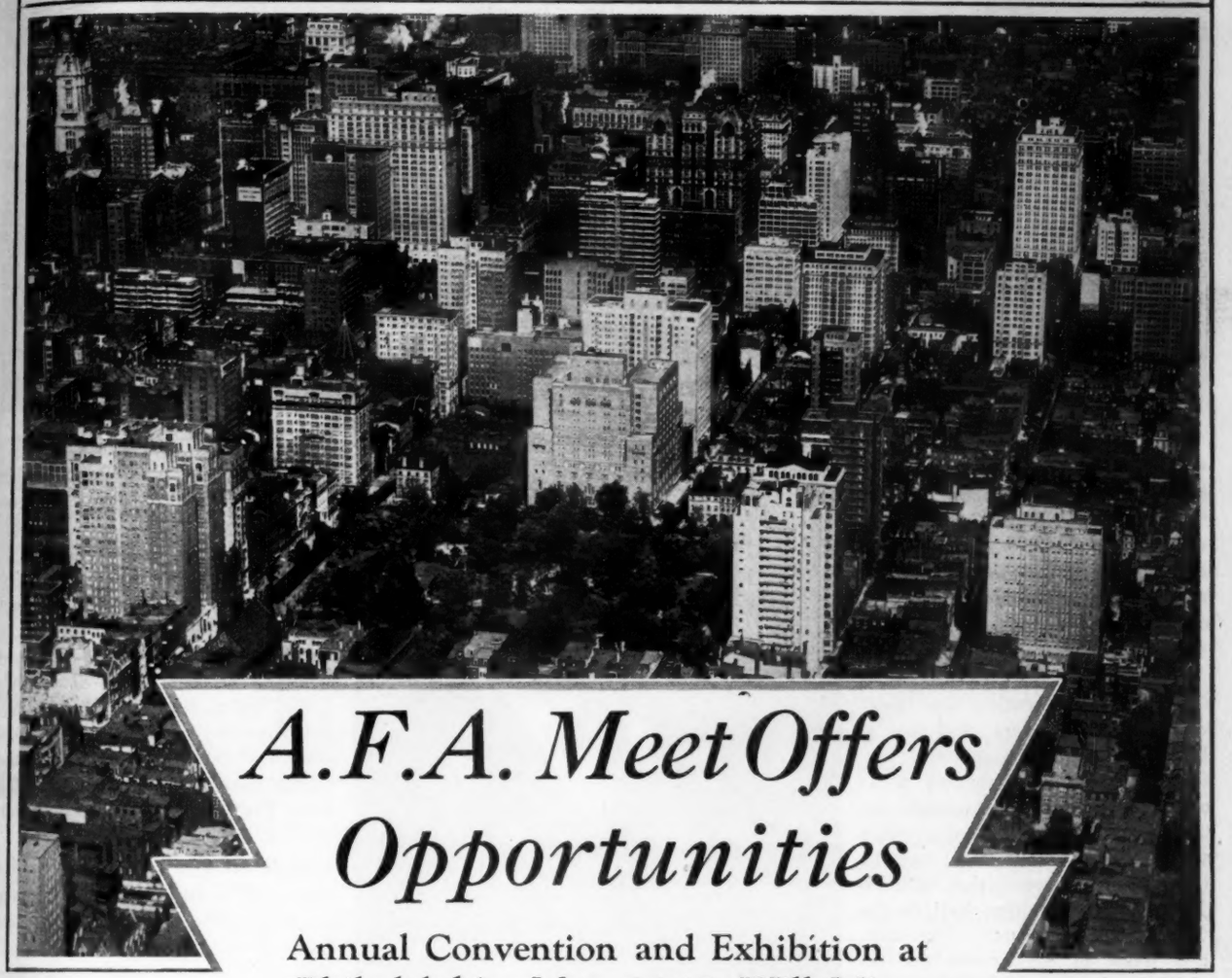
IRON TRADE REVIEW

Vol. 82. No. 18 Established 1883 Cleveland, O., May 3



A.F.A. Meet Offers Opportunities

Annual Convention and Exhibition at Philadelphia, May 14-18, Will Mirror Advances in Castings Industry—Program Includes Study Course, Other Features

DURING the week of May 14 the thirty-second annual convention and the twenty-first exhibition of foundry equipment and supplies of the American Foundrymen's association will be held in Philadelphia. It will be the fourth occasion in 32 years on which the foundrymen have selected the Pennsylvania city for its annual meeting.

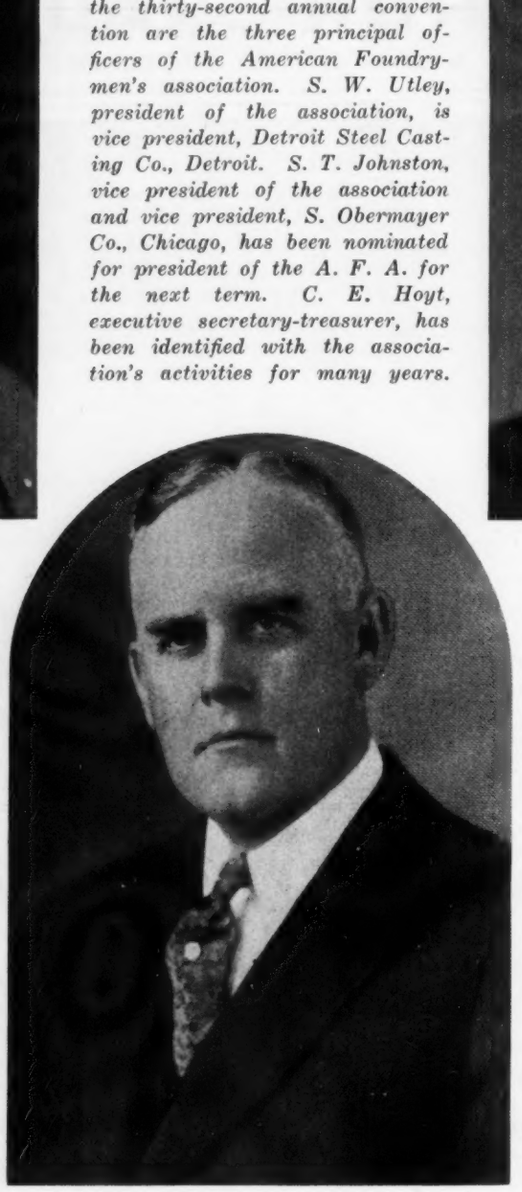
In its opportunities for contributing to the welfare of the castings industry, the approaching affair has a distinct advantage over any of the conventions that have been held in recent years. Its importance is enhanced by the fact that no exhibition was held last year and that the Philadelphia show offers the first opportunity in 18 months for the display of foundry equipment and supplies. Of even greater significance, however, is the present state of the foundry industry, involving many problems of adjustment in technical and economic development which may be aired and classified at this national gathering of foundrymen. Many branches of the castings industry are in a state of flux. In cases where new plants have been built to replace old ones, the type of structures, layout of floors, arrangement and design of equipment, and details of operation and practice are radically different from established standards of the past. These changes are accompanied by new problems of management which are far from being solved.

That the officers of the American Foundrymen's association have recognized the need of discussing these new developments is indicated by the high standard of the technical program

S. T. JOHNSTON

AMONG those responsible for the well balanced plans for the thirty-second annual convention are the three principal officers of the American Foundrymen's association. S. W. Utley, president of the association, is vice president, Detroit Steel Casting Co., Detroit. S. T. Johnston, vice president of the association and vice president, S. Obermayer Co., Chicago, has been nominated for president of the A. F. A. for the next term. C. E. Hoyt, executive secretary-treasurer, has been identified with the association's activities for many years.

C. E. HOYT



STUART WELLS UTLEY

that has been provided. It also has been appreciated by the exhibitors, whose display will demonstrate how the newest equipment available to foundrymen is adapted to the most recent conceptions of ideal practice.

Register at Museum

General registration and association headquarters will be at the Philadelphia Commercial museum. All of the morning technical sessions are scheduled for the Bellevue-Stratford hotel, while all of the afternoon sessions will be held in the convention hall adjoining the exhibition hall in the Commercial museum. The time and place of all events are indicated in the accompanying schedules.

The technical program is unusually well balanced and includes 15 sessions, dealing with all phases of foundry practice. Steel foundrymen will be interested in two sessions devoted to their branch of the industry—one on foundry practice and one on metallurgy. The nonferrous industry likewise has two sessions, one on metal founding and a round table discussion on brass foundry problems. Malleable shop practice will be the subject at two sessions, one of which will be in the form of a round table forum.

Gray iron foundrymen are dealt with liberally, inasmuch as they are afforded two technical sessions as well as a special cupola operation study course. The latter consists of four two-hour lecture periods under the direction of Dr. Richard Moldenke, E. J. Lowry, David McLain and H. W. Dietert. These meetings will be held at the Commercial museum.

The remaining six sessions are of general interest to all foundrymen. They include meetings for the discussion of foundry management, sand control, foundry coke, apprentice training and materials handling. The opening meeting on Tuesday will embrace a business session.

An extensive program for the entertainment of convention visitors has been arranged by the Philadelphia committees composed of foundrymen and equipment and supply manufacturers. The outstanding features include sightseeing trips through Philadelphia and the surrounding territory, a special entertainment program and dance for Thursday evening, extensive trips to many industrial plants in the Philadelphia district and an extensive program for the entertainment of the ladies.

The annual banquet of the American Foundrymen's association will be held Wednesday evening in the ballroom of the Bellevue-Stratford hotel. The banquet will be followed by a reception and dance. On Thursday evening a vaudeville show and dance will be held at the auditorium of the new Scottish Rite Temple at Broad and Race streets.

Visitors who are interested in golf will have ample opportunity to play. The golf committee has made arrangements for visitors to play at various Philadelphia clubs during the week and a golf tournament to be held at the Torresdale country club has been scheduled for Thursday.

Several other special dinners will be held during the week of the convention. On Monday evening a dinner for equipment and supply manufacturers will be held at the Benjamin Franklin hotel under the joint auspices of the American Foundrymen's association and the Foundry Equipment Manufacturers association.

Will Honor Founders

On Tuesday evening, May 15, the American Foundrymen's association will give a complimentary dinner to the foundrymen and equipment and supply manufacturers who met in Philadelphia on May 12, 1896 and founded the association. This dinner, which will be held at the Manufacturers club, promises to be one of the

most distinctive features of the convention week.

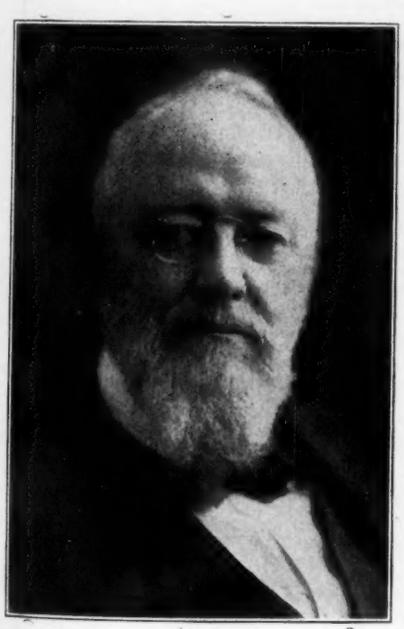
Industrial Philadelphia will hold open house for visitors. The Philadelphia plant visitation committee has made arrangements with many plants for visitation by convention visitors. The committee will maintain a booth at the registration headquarters in the Commercial museum where guests can make arrangements to visit plants other than those to which special trips will be taken.

Among the plants where foundrymen will be welcome during convention week are the following:

Aetna Foundry Co. Inc.	Philadelphia
Ajax Electrothermic Corp.	Ajax Park N. J.
American Engineering Co.	Philadelphia
Bethlehem Steel Co.	Bethlehem, Pa.
Brinton Foundry Co.	Philadelphia
Edward G. Budd Mfg. Co.	Philadelphia
Bureau Bros.	Philadelphia
Cochrane Corp.	Philadelphia
Cresson-Morris Co.	Philadelphia
Crucible Steel Casting Co.	Lansdown, Pa.
Dodge Steel Co.	Philadelphia
Downington Mfg. Co.	Downington, Pa.
Egan-Johnson Steel & Iron Co.	Crum Lynne, Pa.
Fairmount Foundry Inc.	Philadelphia
Federal Steel Foundry Co.	Chester, Pa.
Fletcher Works	Philadelphia
Florence Pipe Foundry & Machine Co.	Florence, N. J.
Glenwood Foundry	Philadelphia
Hajoca Corp.	Philadelphia
Kitson Co.	Philadelphia
Kutztown Foundry & Machine Co.	Kutztown, Pa.
Navy Yard, Fourth Naval District	Philadelphia
Olney Foundry Co.	Philadelphia
Palmyra Foundry Co.	Palmyra, N. J.
Penn Steel Castings Co.	Chester, Pa.
Precision Grinding Wheel Co.	Philadelphia
Rolle Casting Co.	Philadelphia
William Sellers & Co. Inc.	Philadelphia
Sun Shipbuilding & Dry Dock Co.	Chester, Pa.
Tabor Mfg. Co.	Philadelphia
Trenton Malleable Iron Co.	Trenton, N. J.
Victor Talking Machine Co.	Camden, N. J.
Westinghouse Electric & Mfg. Co.	Philadelphia
Wildman Mfg. Co.	Norristown, Pa.

Hold Apprentice Contests

In accordance with the practice of the past few years, the American Foundrymen's association is sponsoring an apprentice contest in steel molding, gray iron molding and pattern making. Local contests in these divisions will be held in Chicago, Milwaukee, Moline, Davenport, Erie, Philadelphia, Schenectady and New England cities and in other foundry centers. The winning entries of these local contests will be forwarded to Philadelphia where prizes will be given by the association for the best specimens in each division.



WALTER WOOD
R. D. Wood & Co., Philadelphia
Member Ex-Officio of all committees

Schedule for Course in Cupola Operation

Monday, May 14, 4:00 p.m: Period 1
Principles Underlying Cupola Melting Process.
Leader, Dr. Richard Moldenke

Tuesday, May 15, 4:00 p.m: Period 2
Cupola Construction Details.
Leader, E. J. Lowry

Wednesday, May 16, 4:00 p.m: Period 3
Cupola Charging Practice.
Leader, David McLain

Thursday, May 17, 4:00 p.m: Period 4
Cupola Improvements.
Leader, H. W. Dietert.

Gray Iron Institute Meeting

As announced in the April 19 issue of IRON TRADE REVIEW, a meeting of the Gray Iron institute will be held on Friday, May 18, the last day of the convention. Through the courtesy of the American Foundrymen's association, the convention hall at the Commercial museum has been made available for the meeting of the institute, which will convene at 10:00 a.m. B. H. Johnson, temporary chairman elected at the organization meeting at Pittsburgh, March 13, will preside. All producers of gray iron castings—manufacturing or jobbing—are invited to attend this session.

The principal address will be presented by Charles F. Abbott, executive director, American Institute of Steel Construction, whose experience in trade association activities and knowledge of merchandising problems afford him an unusual opportunity to discuss the problems attending the establishment of the Gray Iron institute on a practical basis.

A daily newspaper, published by THE FOUNDRY, will report the news of the convention. Each of the four issues will be mailed by the American Foundrymen's association to its members.

G. H. CLAMER
Ajax Metal Co., Philadelphia
General Chairman, Philadelphia Committee

THE foundry industry is fortunate in having on the general Philadelphia committee three outstanding foundry leaders of the Quaker City. G. H. Clamer, general chairman, is a past president of the A. F. A. Walter Wood and Howard Evans are president and secretary, respectively, of the Philadelphia Foundrymen's association.

Founders Issue Year Book

Ohio State Foundrymen's association has issued its year book for 1927. It contains the report of the secretary-manager and proceedings of the seventh annual convention of the association. Charts are presented to show activities of the association and as illustrations for the several papers.

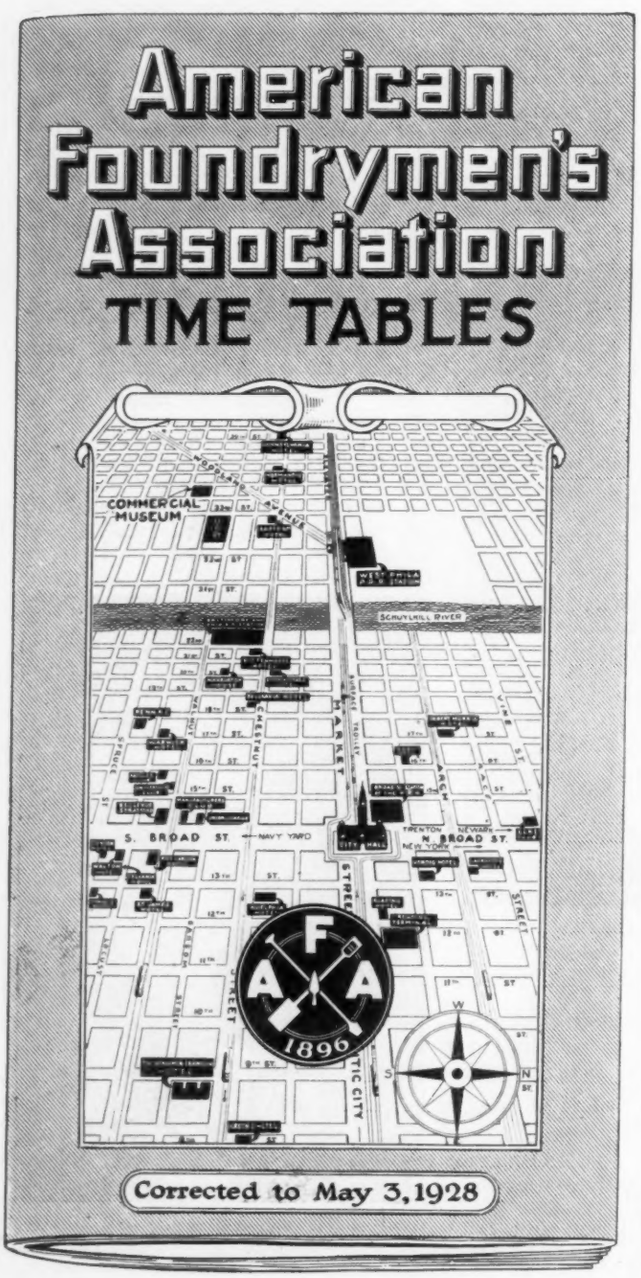
HOWARD EVANS
Secretary, Philadelphia Foundrymen's Association
Member Ex-Officio of all committees

Equipment for Modern Foundry To Be Shown at Philadelphia

VISITORS to the exposition to be held in connection with the thirty-second annual convention of the American Foundrymen's association in Philadelphia May 14-18, will have an unusual opportunity to see and examine practically every type of equipment and supplies used in the modern foundry. Practically every square foot of display space in Commercial Museum will be occupied by the latest models of molding machines, sand conditioning apparatus, melting and pouring equipment, cleaning room machinery, pattern shop tools, sands, core materials and miscellaneous products utilized or consumed in making castings.

With more than 200 manufacturers displaying these products, the exposition probably will comprise the greatest collection of foundry equipment ever shown under one roof. Competition in the castings trade has been extremely keen and profits narrow for several years recently; consequently, the alert manager is interested in effecting economies wherever possible. Improvements in design have made machinery more efficient than ever and interest in the show should not be lacking. For the most part, the machinery will be in operating similating production routine as closely as conditions will permit.

Supplementing the displays of equipment and supplies, an exhibition of steel, malleable and gray iron will be inaugurated this year. The steel castings exhibit will be sponsored by the Steel Founders Society of America, the malleable by the Malleable



Condensed Schedule

Sunday, May 13:
Alumni dinner and meeting of officers and directors of American Foundrymen's association.

Monday, May 14:
Registration, Exhibition hall, Commercial museum.
Registration of ladies, banquet floor, Bellevue-Stratford hotel.
Committee meetings, A. F. A., Bellevue-Stratford hotel.
Exhibits open, 10:00 a. m. to 5:00 p. m.
Evening: Annual exhibitors' dinner, Benjamin Franklin hotel.

Tuesday, May 15:
9:00 a. m. to 10:00 p. m.—Exhibits open.
9:30 a. m.—Opening meeting and business session, Bellevue-Stratford hotel.
11:00 a. m.—Session on nonferrous metals, Bellevue-Stratford hotel.
11:00 a. m.—Session on steel founding, Bellevue-Stratford hotel.
11:00 a. m.—Session on cupola developments, Bellevue-Stratford hotel.
2:30 p. m.—Session on foundry costs, Convention hall, Commercial museum.
Evening: Old timers' reunion and dinner, Manufacturers' club.

Wednesday, May 16:
9:00 a. m. to 5:00 p. m.—Exhibits open.
10:00 a. m.—Session on steel metallurgy, Bellevue-Stratford hotel.
10:00 a. m.—Session on cast iron, Bellevue-Stratford hotel.
10:00 a. m.—Session on malleable iron, Bellevue-Stratford hotel.
12:30 p. m.—Round table discussion on brass founding, Bellevue-Stratford hotel.
2:30 p. m.—Session on foundry management, Convention hall, Commercial museum.
2:30 p. m.—Session on foundry coke, Convention hall.
Evening: Annual banquet, A. F. A., Bellevue-Stratford hotel.

Thursday, May 17:
9:00 a. m. to 5:00 p. m.—Exhibits open.
10:00 a. m.—Session on apprentice training, Bellevue-Stratford hotel.
10:00 a. m.—Session on cast iron, Bellevue-Stratford hotel.
12:30 p. m.—Round table discussion on malleable iron, Bellevue-Stratford hotel.
2:30 p. m.—Session on sand control, Convention hall.
8:00 p. m.—Vaudeville and dance, Scottish Rite temple.

Friday, May 18:
9:00 a. m. to 5:00 p. m.—Exhibits open.
10:00 a. m.—Session on materials handling, Bellevue-Stratford hotel.
10:30 a. m.—Gray Iron institute, Convention hall, Commercial museum.

TUESDAY, MAY 15

9:30 a. m.—General opening meeting and business session
Chairman, President S. W. Utley

11:00 a. m.—Nonferrous Metals
Science in the Foundry, by E. F. Hess, Ohio Injector Co., Wadsworth, O.
Furnace Refractories for Brass Foundries, by H. M. St. John, Detroit Lubricator Co., Detroit.
Risers, Their Need and Methods of Feeding, by R. R. Clarke, General Electric Co., Erie, Pa.
The Effect of Melting and Pouring Conditions Upon the Quality of No. 12 Aluminum Alloy, by T. W. Bossert, The Aluminum Co. of America, New Kensington, Pa.

11:00 a. m.—Steel Founding
Chairman, W. J. Nugent
Economies in Oxy-Acetylene Cutting for Riser Removing, by G. O. Carter, Linde Air Products Co., New York.

(Concluded on next page)

Iron Research institute and the gray iron by a committee composed of foundrymen interested in the production of that class of castings. The purpose of this display will be to lead those interested in the foundry industry to appreciate the engineering possibilities of castings.

Several manufacturers will show molding machines, and in numerous instances, molds actually will be made. The equipment will include both hand and power-operated types and will cover a wide range of capacities. A number of the machines are entirely new and will be shown for the first time. A wide line of jolt squeezers, jolt and air strippers, and vibrators and auxiliary mold-making apparatus is to be on display. At least a half a dozen companies will show flasks, both wood and steel; bottom plates; jackets; bands; clamps; and flask fittings. Core making and core testing equipment and accessories for the core room will constitute another important class of product.

Among the companies to show molding machines, core machines, flasks and miscellaneous mold-making accessories are the following:

The Adams Co.
American Foundry Equipment Co.
Arcade Mfg. Co.
H. L. Baumgardner Corp.
Beardsley & Piper Co.
Berkshire Mfg. Co.
Diamond Clamp & Flask Co.
Herman Pneumatic Machine Co.
Holley Carburetor Co.
International Molding Machine Co.
Johnston & Jennings Co.
J. S. McCormick Co.
Malleable Iron Fittings Co.
Milwaukee Foundry Equipment Co.
Wm. H. Nicholls Co. Inc.
Osborn Mfg. Co.
Sterling Wheelbarrow Co.
Stoney Foundry Engineering & Equipment Co.
Tabor Mfg. Co.
Truscon Steel Co.
Wadsworth Core Machine & Equipment Co.
T. B. Wood's Sons Co.
E. J. Woodison Co.

Melting and pouring equipment will be well represented at Philadelphia. Several furnace builders will show electric furnaces of the high-frequency and induction types. One company will melt gray iron in an induction furnace and pour the metal into permanent molds. Tilting and barrel-type noncrucible and tilting and stationary types of crucible furnaces will be exhibited for use with oil, gas, coal or coke fuels. At least two cupolas will be on exhibition as will several types of equipment for furnishing the blast. Crucibles will be seen in all sizes. About half a dozen companies will demonstrate devices

Schedule of Papers

(*Concluded from preceding page*)

Variables in Steel Foundry Practice, by F. A. Melmoth, Thos. Firth & Sons, Ltd., Sheffield, England. Annual exchange paper to be presented on behalf of the Institute of British Foundrymen.
Interdependence of Operating and Sales Departments in the Success of a Foundry, by K. V. Wheeler, Lebanon Steel Foundry, Lebanon, Pa.
Reducing New Sand Consumption in a Steel Foundry, by H. A. Mason, The Gould Coupler Co., Depew, N. Y.

11:00 a. m.—Cast Iron Founding—Cupola Developments
Chairman, R. F. Harrington

Theory of Cupola Operation in Relation to Practice, by R. B. Schaal, Roberts and Manders Stove Co., Hatboro, Pa.
Automatic Blast Gate Control for Cupola Melting, by H. V. Crawford, General Electric Co., Schenectady, N. Y.
Refractories for the Cupola, by C. E. Bales, Ironton Fire Brick Co., Ironton, O.

2:30 p. m.—Foundry Costs
Chairman, A. E. Hageboeck

Report of Committee on Foundry Costs.
The Schedule Fallacy, by J. J. Ewens, The Geo. H. Smith Steel Casting Co., Milwaukee.
Necessity for Creating a Castings' Consciousness, by A. F. Jensen, The Hanna Engineering Co., Chicago. Presented on behalf of the Foundry Equipment Manufacturer's Ass'n.

WEDNESDAY, MAY 16

10:00 a m.—Steel Metallurgy
Chairman, John Howe Hall

General Characteristics of Alloy Steel Castings, by J. W. Frank, Chicago Steel Foundry Co., Chicago.
Manganese Steel, by H. P. Evans and A. F. Burtt, Pettibone Mulliken Co., Chicago.
A Modern Plant for the Heat Treatment of Miscellaneous Steel Castings, by A. W. Lorenz, Bucyrus, Erie Co., Milwaukee.
Research Laboratory of the American Steel Foundries, by W. C. Hamilton, American Steel Foundries, Indiana Harbor, Ind.
Report of Committee on Steel Castings.
Report of Committee on Heat Treatment of Ferrous Castings.
Report of A. F. A. representative on joint committee on investigation of the effects of phosphorus and sulphur in steel.

10:00 a. m.—Cast Iron
Chairman, J. W. Bolton

Influences of Carbon and Silicon Variations in Cast Iron, by D. G. Anderson and G. R. Bessmer, Western Electric Co., Chicago.
Some Recent Developments in Cupola Metal, by J. D. Miller, Cresson-Morris Co., Philadelphia.
Temperature Measurements of Molten Cast Iron, by H. T. Wensel and W. F. Roeser, Bureau of Standards, Washington, D. C.
Test Bar for Testing the Chill of Cast Iron with Medium and High Silicon Contents, by M. Dudouet, Ecole Superieure de Fonderie, Paris, France. Annual exchange paper of the French Foundry Technical Association.
Heat Losses from a 75 Ton Hot Metal Car, by W. F. Roeser, Bureau of Standards, Washington, D. C.

10:00 a. m.—Malleable Iron
Chairman, F. M. Robbins

Reducing Scrap in the Malleable Foundry, by R. A. Greene, Ohio Brass Co., Mansfield, O.
Effects of Various Elements on Malleable Cast Iron, by L. E. Gilmore, The Crane Co., Chicago.
The Need for Research in the Foundry, by E. E. Griest, Chicago Railway Equipment Company, Chicago.
Oxidation Phenomena During the Annealing of Malleable Cast Iron, by H. A. Schwartz, National Malleable and Steel Casting Company, Cleveland.
An Incentive Bonus Plan for Molders Based on Scrap Control, by R. J. Teetor, The Cadillac Malleable Iron Co., Cadillac, Mich.

12:30 p. m.—Round Table Discussion on Brass Founding
Chairman, N. K. B. Patch

2:30 p. m.—Foundry Management
Chairman, H. Cole Estep

Basic Principles of Management in the Foundry, by J. D. Towne, Dayton, O.
Stabilizing Labor and Cutting Costs, by A. D. Lynch, Ohio Brass Co., Mansfield, O.
What Does the Buyer Expect for his Money? by J. A. Marks, Packard Motor Car Co., Detroit.
A Contribution to the Training of Labor and the Personnel of a Foundry, by A. Soupart, Director of Musee, Professional de l'Etat et des Ecoles Techniques de Morlanwetz, Belgium annual exchange paper of the Belgium Technical Foundry Association.

2:30 p. m.—Foundry Coke
Chairman, A. J. Tuscany

Round Table Discussion of the Present Status of Coke Specifications.
Presentation of Review of Status of Coke Specifications, by W. A. Selvig, U. S. Bureau of Mines, Pittsburgh, Pa.

THURSDAY, MAY 17

10:00 a. m.—Apprentice Training
Chairman, H. A. Frommelt

The American Boy in the Foundry, by F. J. McGrail, Sheffield Works, Fairbanks, Morse Co., Three Rivers, Mich.
Reports of Apprentice Training in Various Foundry Centers. Reviewed by F. A. Lorenz, American Steel Foundries, Indiana Harbor, Ind., and L. V. Park, Park & Williams, Inc., Philadelphia.
Discussion of Apprentice Training.

10:00 a. m.—Cast Iron
Chairman, H. W. Gillett

Theory or Practice in the Gray Iron Foundry, by John Shaw, Southsea, England.
On Research Problems of the Gray Iron Foundry, by J. W. Bolton, The Lunkenheimer Co., Cincinnati.
Report of Committee on Gray Iron.

12:30 p. m.—Malleable Iron Round Table Discussion
Chairman, F. L. Wolf

Following a luncheon gathering, an informal discussion of shop problems of the malleable foundry will take place.

2:30 p. m.—Sand Control
Chairman, B. D. Fuller

Surface Conditions of Castings as Affected by Core Sand Mixtures, by H. L. Campbell, University of Michigan, Ann Arbor, Mich.
Testing Molding Sands for Durability, by M. A. Blakey, International Harvester Co., Milwaukee.
Sand Conservation and Control in a Gray Iron Jobbing Shop, by T. F. Kiley, Brown & Sharpe Manufacturing Co., Providence, R. I.
Sand Control in a Light Casting Shop, by W. G. Reichert, Singer Manufacturing Co., Elizabethport, N. J.
A Compression Test of High Precision—The Colloid Nature of Natural Bond—The Effect of Heating on the Bond, by G. G. Brown, Ann Arbor, Mich., and C. C. DeWitt, Michigan College of Mines and Technology, Houghton, Mich.
Report of committees.

FRIDAY, MAY 18

10:00 a. m.—Materials Handling
Chairman, L. L. Anthes

Materials Handling and Its Relationship to Building Plans, by E. F. Scott, Austin Co., Cleveland.
Determining Returns from Materials Handling Equipment, by J. J. Hartley, The Link Belt Co., Chicago.
What Materials Handling Equipment Can Do For the Jobbing Foundry, by W. B. Marshall, Chain Belt Co., Milwaukee.
Unloading Foundry Materials, by R. T. Turner, Shepard Electric Crane & Hoist Co., Montour Falls, N. Y.
How to Determine When Materials Handling Equipment Should be Installed, by H. J. Dorus and C. S. Schroeder, Yale and Towne Mfg. Co., Stamford, Conn.

to facilitate pouring from crucibles or ladles.

Manufacturers to show melting and pouring equipment include:

Ajax Electrothermic Corp.
Ajax Metal Co.
Arcade Mfg. Co.
C. O. Bartlett & Snow Co.
Blaw-Knox Co.
Campbell-Hausfeld Co.
Chicago Crucible Co.
Detroit Electric Furnace Co.
Joseph Dixon Crucible Co.
General Electric Co.
Grindle Fuel Equipment Co.
Lava Crucible Co. of Pittsburgh.
Monarch Engineering & Mfg. Co.
Pittsburgh Electric Furnace Corp.
Pyrometer Instrument Co.
Spencer Turbine Co.
Titgen-Eastwood Co.
Vesuvius Crucible Co.
Whiting Corp.
Wilbraham Green Blower Co.

Machinery for the mechanical preparation and conditioning of sand comprises an interesting class of equipment and numerous machines for this purpose will be demonstrated. They will include blenders, cutters, screeners and pilers, electric and pneumatic riddles and conveyors. Among companies making this type of equipment are the following:

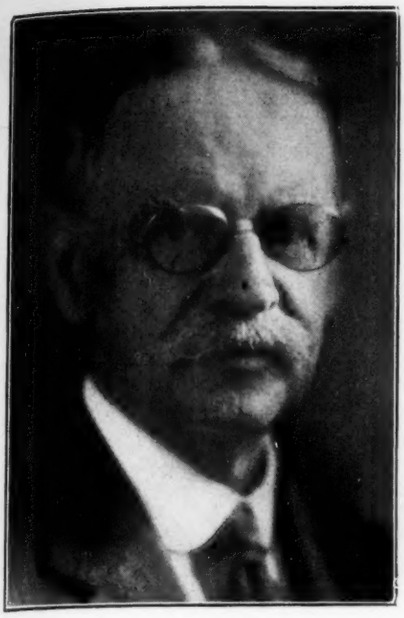
The Adams Co.
American Foundry Equipment Co.
Axmann Sand-Throwing Machine Co.
C. O. Bartlett & Snow Co.
Beardsley & Piper Co.
Clearfield Machine Co.
Deister Concentrator Co.
Harry W. Dietert.
Federal Foundry Supply Co.
Great Western Mfg. Co.
Jeffery Mfg. Co.
Lowe Mfg. Co.
J. S. McCormick Co.
R. W. McIlvaine Co.
National Engineering Co.
Osborn Mfg. Co.
Production Equipment Co.
Royer Foundry & Machine Co.
W. W. Sly Mfg. Co.
Standard Sand & Machine Co .
W. S. Tyler Co.

Considerable interesting machinery goes into the cleaning room of the modern foundry, including tumbling barrels, sand blasts, grinders, brushes, chipping hammers, pickling equipment, etc. Machinery of this sort will be displayed by a number of companies and will cover a wide range of capacities from light to extreme heavy duty. Engaged in this business are the following:

Abrasive Co.
American Foundry Equipment Co.
American Steel Abrasives Co.
Biax Flexible Shaft Co.
Black & Decker Mfg. Co.
Bridgeport Safety Emery Wheel Co.
Buckeye Portable Tool Co.
Carborundum Co.
Chicago Pneumatic Tool Co.
Cleveland Pneumatic Tool Co.
Globe Steel Abrasive Co.
Independent Pneumatic Tool Co.
Ingersoll-Rand Co.
Kling Bros. Engineering Works.
Macleod Co.
Manhattan Rubber Mfg. Co.
Marschke Mfg. Co.

Alphabetical List of Exhibitors

	Booth No.
Abrasive Industry	309, 362
Abrasive Co.	136, 138
Adams Co.	181
Air Reduction Sales Co.	488-491
Ajax Electrothermic Corp.	483, 484
Ajax Metal Co.	401-402
Albany Sand & Supply Co.	344
Alloys & Products, Inc.	291
Alpha-Lux Co. Inc.	2
American Brake Shoe & Fdy. Co.	8
American Engineering Co.	105-109
American Foundry Equipment Co.	Block Q
American MonoRail Co.	334, 336
American Saw Mill Machinery Co.	195
American Steel Abrasives Co.	299
American Vent Wax Co.	210
Ames Shovel & Tool Co.	289
Arcade Mfg. Co.	283-287
Asbury Graphite Mills	81
Austin Co.	83, 84
Automatic Transportation Co.	315, 317
Axmann Sand-Throwing Machine Co.	72, 74
Ayers Mineral Co.	257
Baker-Raulang Co.	312
C. O. Bartlett & Snow Co.	401, 403, 466, 468
H. L. Baumgardner Corp.	405,470
Bausch & Lomb Optical Co.	201
Beardsley & Piper Co.	407-415, 472-480
Berkshire Mfg. Co.	450
Bethlehem Steel Co.	239, 292
Biax Flexible Shaft Co. Inc.	370
Black Diamond Saw & Machine Works	179
Black & Decker Mfg. Co.	27, 29
Blaw-Knox Co.	93
Bloomsbury Graphite Co.	241
Botfield Refractories Co.	430
Box Crane & Hoist Corp.	96, 98
Bradley Washfountain Co.	112
Bridgeport Safety Emery Wheel Co.	118
Brown Instrument Co.	259
Buckeye Portable Tool Co.	397
Campbell-Hausfeld Co.	311, 313
Carborundum Co.	267-273
Carr Fastener Co.	167
Chicago Crucible Co.	207
Chicago Pneumatic Tool Co.	30-36
Chisholm-Moore Mfg. Co.	363
Clark Tructractor Co.	53
Clearfield Machine Co.	393, 395
Cleveland Electric Tramrail	22-26
Cleveland Flux Co.	418, 419
Cleveland Pneumatic Tool Co.	432, 434
Clipper Belt Lacer Co.	420
Thomas E. Coale Lumber Co.	488
Combined Supply & Equipment Co.	265
Corn Products Refining Co.	260
Daily Metal Trade	309, 362
Dayton Oil Co.	229
Debevoise-Anderson Co.	233
Decatur Milling Co.	209
Deister Concentrator Co.	116
Wm. Demmler & Bros.	458-462
Detroit Electric Furnace Co.	451, 453
DeWalt Products Co.	191
Diamond Clamp & Flask Co.	310
Harry W. Dietert	301
Joseph Dixon Crucible Co.	270
Eastern Clay Products, Inc.	284
Eastern Steel Castings	365, 367, 19, 21, 23
D. A. Ebingers Sanitary Mfg. Co.	122
Edison Storage Battery Co.	9, 10
Electric Storage Battery Co.	421
Electro Refractories Corp.	228
Elwell-Parker Electric Co.	448
Fanner Mfg. Co.	253
Federal Foundry Supply Co.	359, 361
The Foundry	309, 362
Foundry Equipment Co.	75, 76
Foundry Manganese Co.	155
Fowler & Union Horse Nail Co.	224
General Electric Co.	375-381
Girard Smelting & Refining Co.	261
Globe Steel Abrasive Co.	45
Great Lakes Foundry Sand Co.	277
Great Western Mfg. Co.	114
Grindle Fuel Equipment Co	319, 372
Hayward Co.	47, 49
Herman Pneumatic Machine Co.	338-342
Hill & Griffith Co.	222
Holley Carburetor Co.	461, 463
Hynson, Westcott & Dunning	286, 288
Illinois Clay Products Co.	221
Independent Pneumatic Tool Co.	464
Indiana-Consumers Gas Co.	230, 232
Industrial Minerals Co.	244, 246
Ingersoll-Rand Co.	128, 134
International Molding Machine Co.	347-353, 400-406
International Nickel Co.	416
IRON TRADE REVIEW	309, 362
Jeffrey Mfg. Co.	357
Johnston & Jennings Co.	440-444
Chas. C. Kawin Co.	212
Keller Mechanical Engineering Corp.	165
Spencer Kellogg & Sons, Inc.	145, 200
Keystone Coal & Coke Co.	238
Keystone Lubricating Co.	151, 153
Kling Bros. Engineering Works.	68
Knefler-Bates Mfg. Co.	290
H. W. Knight & Son	3
H. Kramer & Co.	274
Wm. Laidlow Inc.	428
Lancaster Sand & Coal Co.	223
H. M. Lane Co.	208
Lava Crucible Co. of Pittsburgh.	280
Leeds & Northrup Co.	417
Lehigh Safety Shoe Co.	5
Linde Air Products Co.	281, 283
Lindsay-McMillan Co.	307
Link-Belt Co.	90, 92
Louden Machinery Co.	95-101, 148-154
Lowe Mfg. Co.	436
David Lupton's Sons Co.	236
J. S. McCormick Co.	158-162
R. W. McIlvaine Co.	237
Macleod Co.	39
Paul Maehler Co.	61, 63
Malleable Iron Fittings Co.	31, 33
Manhattan Rubber Mfg. Co.	70
Marschke Mfg. Co.	102-108
Martin-Rosebury Corp.	82
Mathews Conveyor Co.	15
Mathieson Alkali Works, Inc.	7
Mercury Mfg. Co.	330, 332
Metal & Thermit Corp.	
H. E. Mills Mfg. Co.	
Milwaukee Foundry Equipment Co.	17
Monarch Engineering & Mfg. Co.	485-487
Mt. Jewett Fire Clay Co.	214
National Engineering Co.	37, 110
National Pulverizing Co.	305
National Smelting Co.	285
New Haven Sand Blast Co.	137-143, 190-196
New Jersey Silica Sand Co.	247
Niagara Falls Smelting & Refining Corp.	216, 218
Wm. H. Nicholls Co. Inc.	69, 71, 140, 142
Northern Engineering Works	369, 371
Norton Co.	443-449
National Smelting Co.	285
S. Obermayer Co.	38, 40, 42
Oiless Core Binder	272
Oliver Machinery Co.	129-133, 182-186
Tinius Olsen Testing Machine Co.	
Osborn Mfg. Co.	425-439
Ottawa Silica Co.	275
A. T. Otto & Sons	19, 21, 23
Pangborn Corp.	Block E
Patent Cereals Co.	303
Paxson-Taggart Inc.	293
Pennsylvania Foundry Supply Co.	300
Penton Publishing Co.	309, 362
Charles Pettinos	252
George F. Pettinos	254
Pittsburgh Electric Furnace Corp.	465-469
Port Crescent Sand & Fuel Co.	278
Portage Silica Co.	306
Precision Grinding Wheel Co.	175
Production Equipment Co.	124, 126
Pulmosan Safety Equipment Co.	296
Pyrometer Instrument Co.	248
Reading Chain & Block Corp.	59
Robeson Process Co.	215
Wm. C. Robinson & Son Co.	314
Rogers, Brown & Crocker Bros.	220
Rohrbacher Shoe Co.	295
Rotor Air Tool Co.	51
Royer Foundry & Machine Co.	471-479
Ruemelin Mfg. Co.	455
Safety Equipment Service Co.	204
Sager Glove Co.	250
Semet-Solvay Co.	328
Shepard Electric Crane & Hoist Co.	12-16
Shevlin, Carpenter & Clarke Co.	11
Simons Paint Spray Brush Co.	43
W. W. Sly Mfg. Co.	346-360
Smith-Monroe Co.	177
Smith Oil & Refining Co.	235
Werner G. Smith Co.	255, 308
Spencer Turbine Co.	391
Springfield Facing Co.	41
Standard Sand & Machine Co.	67
Standard Silica Co.	
Sterling Wheelbarrow Co.	324, 326
Frederic B. Stevens Inc.	91
Stoney Foundry Engineering & Equipment Co.	452-456
Sugar Pine Exhibits	77, 78
Sullivan Machinery Co.	457, 459
Superior Sizing Co., Inc.	240, 242
Swan-Finch Oil Corp.	297
Swartwout Co.	18, 20
Tabor Mfg. Co.	54-56
Tiona Petroleum Co.	364
Titgen-Eastwood Co.	316
Tottenville Cooper Co.	149
Trumbull Mfg. Co.	
Truscon Steel Co.	412, 414
20th Century Woodworker	120
W. S. Tyler Co.	171, 173
United Compound Co.	206
U. S. Electrical Tool Co.	183-189
U. S. Graphite Co.	226
Vesuvius Crucible Co.	245
Wadsworth Core Machine & Equipment Co.	219
White & Bro. Inc.	227
Whitehead Brothers Co.	144
Whiting Corp.	321-327, 374-380
Wilbraham Green Blower Co.	373
G. H. Williams Co.	163
J. E. Williams Shoe Co.	234
T. B. Wood's Sons Co.	146
E. J. Woodison Co.	57
Yale & Towne Mfg. Co.	318, 320
Young Bros. Co.	79, 80
Zanesville Sand Co.	147



C. F. HOPKINS
Finance Committee

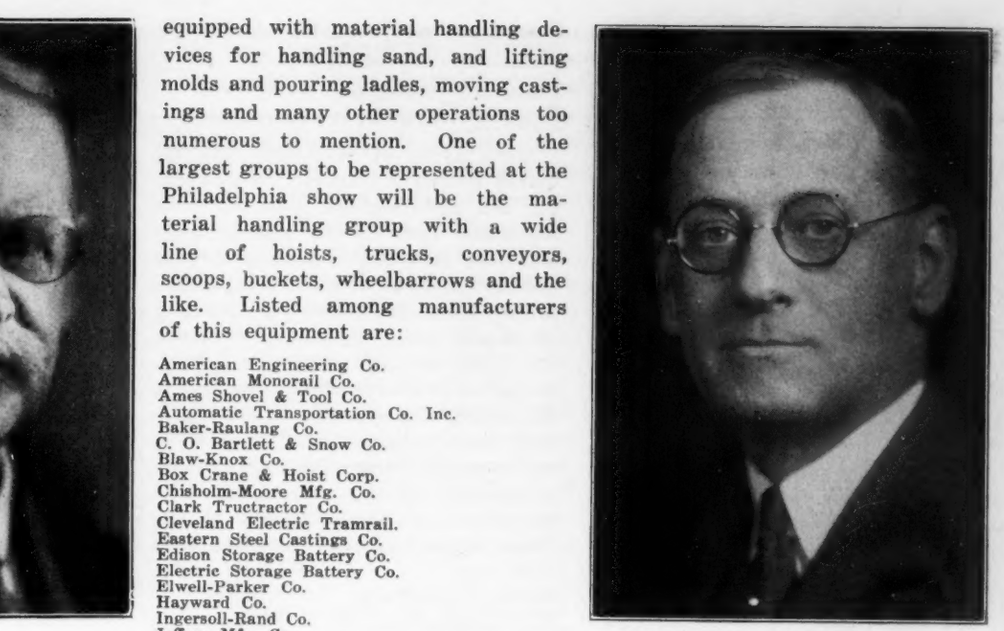
National Pulverizing Co.
New Haven Sand Blast Co.
Norton Co.
Pangborn Corp.
Portage Silica Co.
Precision Grinding Wheel Co. Inc.
Rotor Air Tool Co.
Ruemelin Mfg. Co.
W. W. Sly Mfg. Co.
Titgen-Eastwood Co.
United States Electrical Tool Co.
Whiting Corp.

Every up-to-date foundry is well equipped with material handling devices for handling sand, and lifting molds and pouring ladles, moving castings and many other operations too numerous to mention. One of the largest groups to be represented at the Philadelphia show will be the material handling group with a wide line of hoists, trucks, conveyors, scoops, buckets, wheelbarrows and the like. Listed among manufacturers of this equipment are:

American Engineering Co.
American Monorail Co.
Ames Shovel & Tool Co.
Automatic Transportation Co. Inc.
Baker-Raulang Co.
C. O. Bartlett & Snow Co.
Blaw-Knox Co.
Box Crane & Hoist Corp.
Chisholm-Moore Mfg. Co.
Clark Tructractor Co.
Cleveland Electric Tramrail.
Eastern Steel Castings Co.
Edison Storage Battery Co.
Electric Storage Battery Co.
Elwell-Parker Co.
Hayward Co.
Ingersoll-Rand Co.
Jeffery Mfg. Co.
Link-Belt Co.
Louden Machinery Co.
R. W. McIlvaine Co.
Mathews Conveyor Co.
Mercury Mfg. Co.
National Engineering Co.
Northern Engineering Works.
Reading Chain & Block Corp.
Shepard Electric Crane & Hoist Co.
Sterling Wheelbarrow Co.
Sullivan Machinery Co.
Whiting Corp.
G. H. Williams Co.
Yale & Towne Mfg. Co.

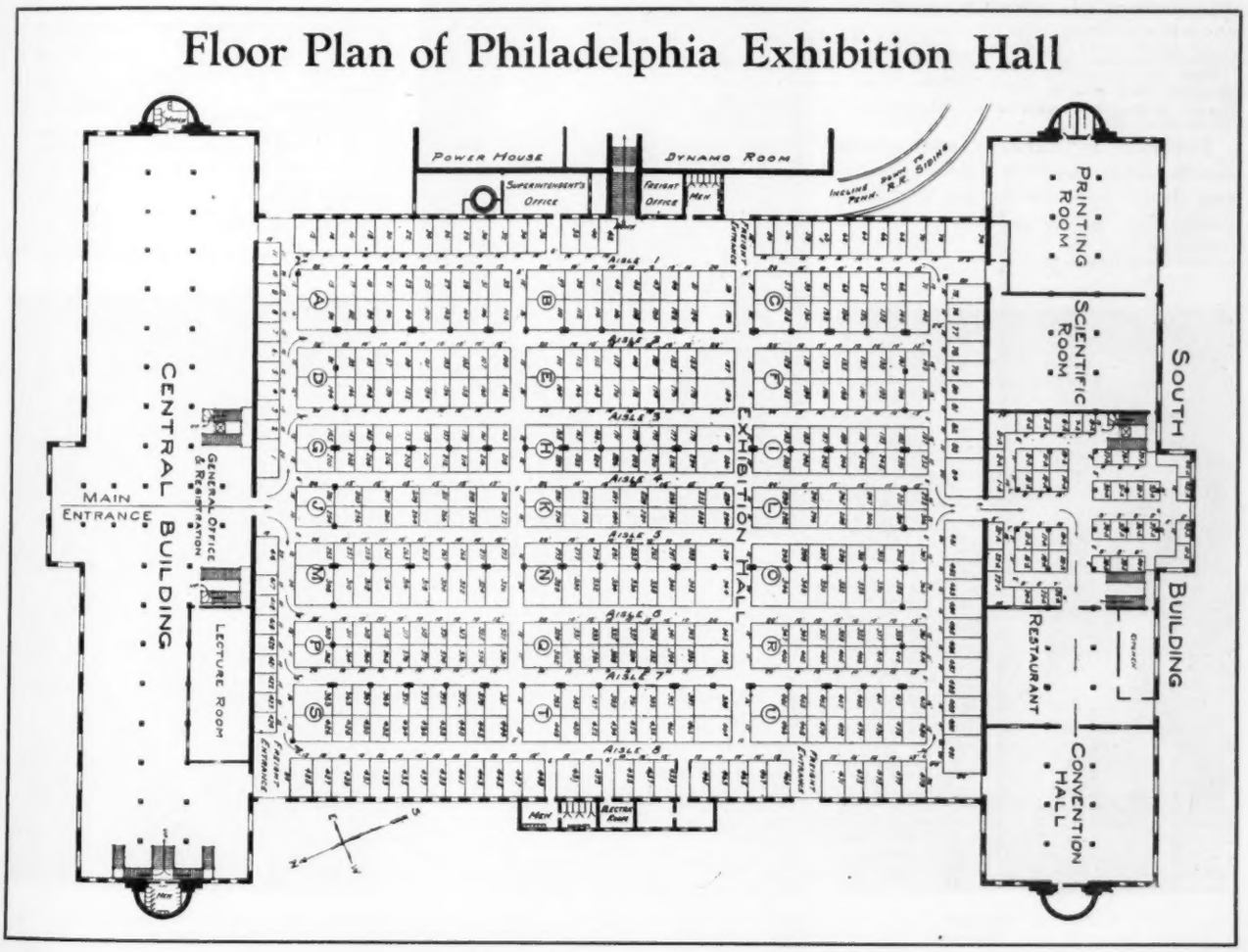
Pig irons in standard and special grades; brass, copper, nickel and aluminum alloys; ferromanganese, ferrosilicon and ferrochrome; and babbitt metals are among the metals to be displayed. Manufacturers to show these products are the following:

Ajax Metal Co.
Alloys Products Inc.
Bethlehem Steel Co.



B. H. JOHNSON
Plant Visitation Committee

Floor Plan of Philadelphia Exhibition Hall



RALPH BELLEVILLE
Ladies Entertainment Committee

Foundry Manganese Co.
Girard Smelting & Refining Co.
International Nickel Co.
H. Kramer & Co.
Metal & Thermit Corp.
National Smelting Co.
Niagara Falls Smelting & Refining Corp.
Rogers Brown & Crocker Bros. Inc.
Tottenville Copper Co.
White & Bros., Inc.

By-products coke for cupola operation and other melting and heating operations will be shown at the booths of:

Debevoise-Anderson Co.
Indiana Consumers Gas & By-Products Co.
Keystone Coal & Coke Co.
Rogers Brown & Crocker Bros. Inc.
Semet-Solvay Co.

Firebrick in standard and special shapes, refractory materials in cement and plastic form for furnace and ladle linings will be shown by:

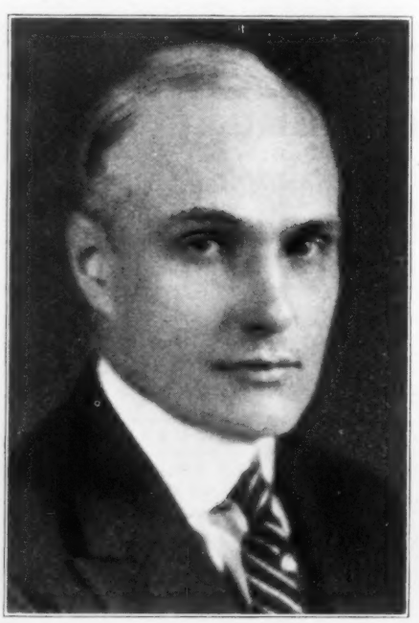
Alpha-Lux Co., Inc.
Botfield Refractories Co.
Carborundum Co.

WALTER L. KALBACH
Transportation Committee

Chicago Crucible Co.
Joseph Dixon Cricible Co.
Eastern Clay Products Inc.
Electro Refractories Corp.
Illinois Clay Products Co.
Mt. Jewett Fire Clay Co.
Norton Co.

Many types of machinery are required around a foundry. Woodworking and metalworking tools serve an important part in the pattern shop and flask department; pneumatic tools are used in large number; compressors are needed to provide air for operating pneumatic tools, rammers, vibrators, etc.; and welding equipment is employed to cut risers from castings, to fill surface imperfections and for general plant repair work. Thus it is not surprising that more than 15 manufacturers will be represented with equipment in these fields. Among these companies may be listed the following:

Air Reduction Sales Co.
American Saw Mill Machinery Co.
Black & Decker Mfg. Co.
Black Diamond Saw & Machine Works.
Chicago Pneumatic Tool Co.
Cleveland Pneumatic Tool Co.
Wm. Demmler & Bros.
De Walt Products Co.
General Electric Co.
Independent Pneumatic Tool Co.
Ingersoll-Rand Co.
Keller Mechanical Engineering Corp.
Linde Air Products Co.
Wm. Laidlow, Inc.
Oliver Machinery Co.
Stoney Foundry Engineering & Equipment Co.



LAIRD U. PARK
Reception Committee

Sullivan Machinery Co.
Twentieth Century Sales Agency.
United States Electrical Tool Co.

Building design and plant layout are of major importance to a new foundry and of nearly equal importance to the old plant which finds it must expand or rebuild. Engineering service of this nature and various lines of plant equipment is the field covered by the following exhibitors:

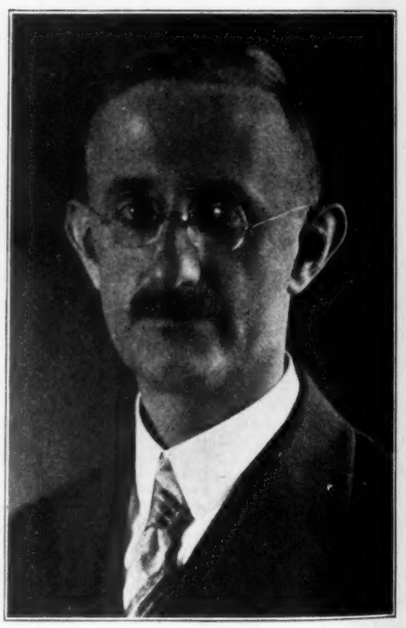
Austin Co.
Blaw-Knox Co.
H. M. Lane Co.
David Lupton's Sons Co.
Truscon Steel Co.

FREDERICK M. DEVLIN
Entertainment Committee

A wide range of sands is required in the foundry industry, not only for molding purposes, but for coremaking as well. About 20 companies are interested in this class of material:

Albany Sand & Supply Co.
Ayers Mineral Co.
Eastern Clay Products Inc.
Great Lakes Foundry Sand Co.
Industrial Minerals Co.
Lancaster Sand & Coal Co.
Mt. Jewett Fire Clay Co.
National Pulverizing Co.
New Jersey Silica Sand Co.
Ottawa Silica Co.
Paxson-Taggart, Inc.
Pennsylvania Foundry Supply Co.
Charles Pettinos.
George F. Pettinos.
Port Crescent Sand & Fuel Co.
Portage Silica Co.
Standard Silica Co.
Whitehead Brothers Co.
Zanesville Sand Co.

Among the manufacturers who will



J. A. DAVIES
Hotel Committee

T. H. ADDIE
Golf Committee

show core ovens and drying equipment are the following:

Foundry Equipment Co.
Paul Maehler Co.
Monarch Engineering & Mfg. Co.
Spencer Turbine Co.
Swartwout Co.
Young Brothers Co.

Miscellaneous equipment comprises widely diverging lines such as annealing pots, control and testing instruments, chaplets, gaggers, oil burners and the like. Some of the manufacturers of these products are listed as follows:

American Brake Shoe & Foundry Co.
Bausch & Lomb Optical Co.
Brown Instrument Co.
Fanner Mfg. Co.
Leeds & Northrup Co.
MacLeod Co.
Tinius Olsen Testing Machine Co.
Truscon Steel Co.

To Establish Endowment for Foundation

Endowment of $7.000,000 is sought for the Engineering Foundation and the Engineering Societies library, it has been announced by the trustees of the United Engineering society, representing the national societies of civil, mining and metallurgical, mechanical and electrical engineers. One fund of $5,000,000, it is planned, will be applied to the research projects of the Foundation and a second fund of $2,000,000 to the maintenance of the library. The Foundation was established 13 years ago with a gift of $500,000 from Ambrose Swasey, engineer and manufacturer of Cleveland. This amount has been increased to about $625,000.

Secretary of Commerce Herbert Hoover has accepted appointment to the endowment committee, of which Col. Edward A. Simmons is chairman. Mr. Hoover is a past president of the American Institute of Mining and Metallurgical Engineers and of the American Engineering council, which was organized under his headship. He is a member of the American Society of Mechanical Engineers and an honorary member of the American Society of Civil Engineers.

School Offering Courses in Summer Work

Courses in engineering subjects are receiving special attention in the plans for this year's summer session at Carnegie Institute of Technology, Pittsburgh. The work is being outlined to cover both theoretical classroom instruction and shop practice, to appeal not only to undergraduates, but also to those engaged in engineering work who feel a need for more technical training in their respective fields. Courses of six and eight weeks will be offered, beginning June 11. Included in the courses will be chemistry, physics, mechanics, surveying, coal mining, welding, machine practice, mathematics and engineering drawing.

W. G. SUMMERS
Ladies Entertainment Committee

Baldwin Locomotive Works, Philadelphia, will build 275 armored bodies, to be mounted on motor trucks, for the post office department.

Commercial Museum, Philadelphia, where foundry exposition will be held

Foreign Trade Problems Analyzed by National Council at Houston

WORLD-WIDE peace will increase international trade, and all nations, including the United States, will derive their rightful share of the general prosperity, was the consensus of opinion expressed in the addresses at the fifteenth annual convention of the National Foreign Trade council in Houston, Tex., April 25-27.

Latin-American trade problems occupied the foreground in most of the discussion, and provided the only discordant note of the convention. This came from Cuba, through a paper read for its ambassador to the United States, Dr. Orestes Ferrera, who complained about the American tariff on Cuban sugar and tobacco and made a threat of higher duties on American products.

Senor Don Carlos G. Davila, ambassador from Chile to the United States, said relations were never better between the two countries, and drew a dismal picture which he said would ensue if American capital ceased to flow into South America, particularly Chile.

Manuel Mayo Barrencheaux, Los Angeles, delegate of the Confederated Chambers of Commerce, of Mexico City, in a paper read for him by B. A. Almada, commercial attache at Los Angeles, asserted that in Mexico "a fabulous amount of business that you can easily get, if you care to, awaits you."

Vice President Is Chairman

Approximately 1000 delegates were present when the convention opened Wednesday morning.

Eugene P. Thomas, vice president of the United States Steel Products Co., opened the meeting in the absence of James A. Farrell, president of the United States Steel Corp. It was the first time in 15 years Mr. Farrell had not attended a council convention, he said in a message read by O. K. Davis, national secretary.

Roy Miller, Corpus Christi, Tex., publisher, welcomed the delegates on behalf of the state, and Mayor Holcombe of Houston welcomed them to the city.

Mr. Thomas then delivered an address on "The Foreign Trade Outlook," in which he declared that an increase in American investments abroad will result in a great foreign trade.

George P. Auld, of Haskins & Sells, New York, formerly accountant general of the reparations commission, praised the Dawes plan, but said it would be a good thing to cancel the war debts.

James P. Butler, president, Canal Bank & Trust Co., New Orleans, spoke on foreign trade developments in the gulf states.

Visit Port at Houston

The three following sessions, Wednesday afternoon and night and Thursday morning, were devoted to export merchandising problems.

Thursday afternoon about 300 of the delegates took a trip down the Houston ship channel, which was dredged from Galveston bay to make a port at Houston, 50 miles inland from the gulf. The trip was made on the shipping board steamer, WEST CAMAK, loaned through the courtesy of General A. C. Dalton, head of the board, who was at the convention. After seeing the various industries along the banks, and disembarking at San Jacinto battleground, where General Sam Houston won the independence of Texas in 1836, the return trip was made by train.

The Latin-American session was held Friday morning, at which time the Chilean ambassador and others spoke, and the Cuban complaint was heard. Then, Friday afternoon, an address prepared by James A. Farrell was heard. It was read by Mr. Davis, the secretary.

"One of the indications of the accelerating pace of world commerce that many of our traders have felt in their own business is the stiffening competition they are encountering in some of the so-called neutral markets," wrote Mr. Farrell.

"But we are meeting it, and it justifies a certain optimism on our part that our sales are expanding just as rapidly, in many cases a little more rapidly, than those of our competitors. And we must not forget that while we are encountering the competition of other industrial nations they in turn are encountering our competition in the same fields, and if we may judge by the reports of their field observers they have a growing respect for American merchandising skill.

"There is a specially significant phase of last year's trade figures. It is that although total values of raw material imports, both into the United States and into other industrial nations, were smaller than in 1926, volume of such imports was generally larger. That means, of course, increasing production. That definitely indicates continuation for some time, at least, of the stiffer competition for the immediate effect of expanding industrial activity is naturally more active sales effort.

"The ultimate effect, however, is a more cheerful subject of contemplation. For out of increased production and sale comes inevitably increased consumption. It is in the narrow market that competition is most severely felt. As the market broadens that severity decreases.

"In desiring to see all of Latin-America always stable, strong and peaceful, we are not actuated by idealism or altruism. Both are strong and high motives. But ours is, after all, an even stronger reliance upon that basic human desire, which has been chiefly responsible for all world advance, the primal urge to better our own circumstances of life."

Antidumping Act Is Drastic

"Our present antidumping act is extreme and drastic and was not founded on sound economic principles," said George C. Davis, customs adviser, National Council of American Importers and Traders Inc., New York. "It was written into the present law through a fear that there was considerable war material in Europe that could be dumped into this country at very low prices. The present penalty for dumping is the difference between the price in the home country and the price paid for the merchandise, when such price is lower and becomes a detriment to the American manufacturers in the sale of similar merchandise.

"I believe it is a recognized fact that all countries, as a rule, sell goods for export a little cheaper than they sell them in their home market, and I believe that the United States follows this practice, to a large extent. The reason for lower export prices is obvious. It may bring about increased production at a lowering over-

head, permitting a lower price for goods manufactured for exportation and domestic introduction. The difference between export price and home value price in the foreign country may be due entirely, and usually is, to ordinary and legitimate competitive conditions such as exist in our own markets. All countries seek foreign outlets for their products, and a lower export price may be a very fair competitive value, and if so, a penalty in the form of an excessive and drastic dumping duty should not be imposed.

"If our present dumping law is continued on our statute books, we may certainly expect retaliation by foreign countries, penalizing our goods by antidumping provisions similar to ours."

"The department of state has always stood for the open door," said W. R. Castle Jr., assistant secretary of state. "That, indeed, can be called a distinctively American policy, adopted now with few reservations by the principal civilized nations. But all your government can do is to open the door and hold it open. We cannot pass through the door and do business for you and I am perfectly sure that in the long run you would not want us to do it. Too obvious government support of business, too obvious co-operation with business is sure to lead to interference with business, to eventual control of business. You do not want that at home and do not want it abroad. It is our job to keep the highways open and in good repair, yours to fill them with trucks; it is our job to make the traffic rules as sane and as little interfering as possible, yours to achieve success within the rules."

"It is our experience based upon numerous investigations that no manufacturer should sit in lone judgment on his own marketing problems," said C. M. Peter, export manager, Black & Decker Mfg. Co., Towson, Md., in summing up various problems of export merchandising. "Always have we found the need of the fresh, unbiased outside viewpoint, backed with cold facts. The world bestows its big prize, both in money and honors, for but one thing, that is, initiative. Preparatory marketing analysis will intelligently develop the kind of initiative that will become a force for increasing merchandising distribution throughout the world."

Following the convention, about 250 of the delegates Saturday made a trip through the Sabine-Neches river district, seeing the ports of Port Arthur, Beaumont, Orange and Lake Charles.

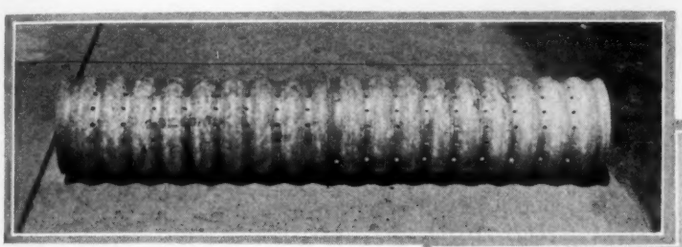
Fellowships Available

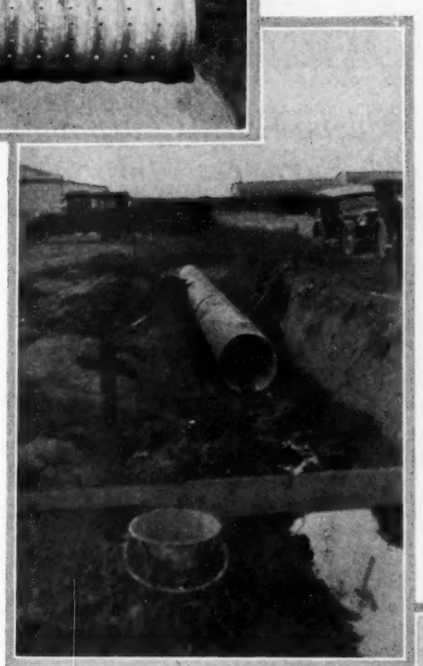
Four research fellowships in ore dressing—problems in gravity concentration and flotation—for the year 1928-29 are being offered by the school of mines and metallurgy of the University of Missouri in co-operation with the United States bureau of mines and the State Mining experiment station. These fellowships are open to graduates who have the equivalent of a bachelor of science degree and who have had the proper training in mining, metallurgy or chemistry, and who are qualified to undertake research work. The income of each fellowship is $800. Inquiries should be addressed to the director, school of mines and metallurgy, University of Missouri, Rolla, Mo.

Steel Code Is Issued

A booklet has been prepared by the American Institute of Steel Construction Inc., New York, containing its standard specifications for structural steel for buildings, specifications for fireproofing structural steel buildings and code of standard practice.

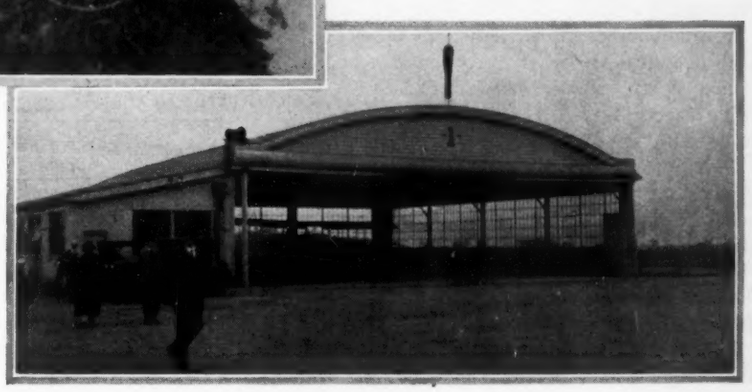
This has been done to meet demand from building inspectors, architects and others in contact with construction. The specifications are reprinted from the institute's standard handbook, which gives allowable load tables and other engineering data.





Steel Drys Ground for Aviation's Progress

ONE phase of aviation which ordinarily receives little attention from the layman, but is given serious consideration by those actively engaged in it, is the assurance of firm ground for take-off and landing. Steel has entered the solution of this problem, just as it has contributed to the advancement of other phases of aviation's development. Steel pipe, the use of which has been fostered by the Armco Culvert Manufacturers association, has been employed in increasing volume for draining landing fields. One of the most recent installations was at the municipal airport of Buffalo. A considerable quantity of 24 and 30-inch perforated pipe was used in adequately draining this airport. The success of the application at Buffalo has led to many inquiries on the draining of airports with steel pipe.



HOT castings are lifted from the shakeout with a long handle hook suspended from a chain. They are transferred to hooks on a conveyor which takes them on a cooling journey over the roof and then deposits them near the sand-blast chamber.

Foundry Is Operated Continuously

Detroit Plant Installs Mechanical Equipment to Mold, Pour and Assemble Stoves and Furnaces—Improved Methods Effect Reduction in Labor Costs—Operating Details Presented

By Pat Dwyer

METHODS and equipment for molding and melting in the new foundry of the Peninsular Stove Co., Detroit, are radically different from the standards prevalent in most stove shops in the past. In practically every operation, mechanical equipment takes the place of one or more men who would be required if the customary manual methods were employed.

Melting, molding, shaking out and sand preparation are carried on continuously and simultaneously for the entire 8-hour day. No night force is employed.

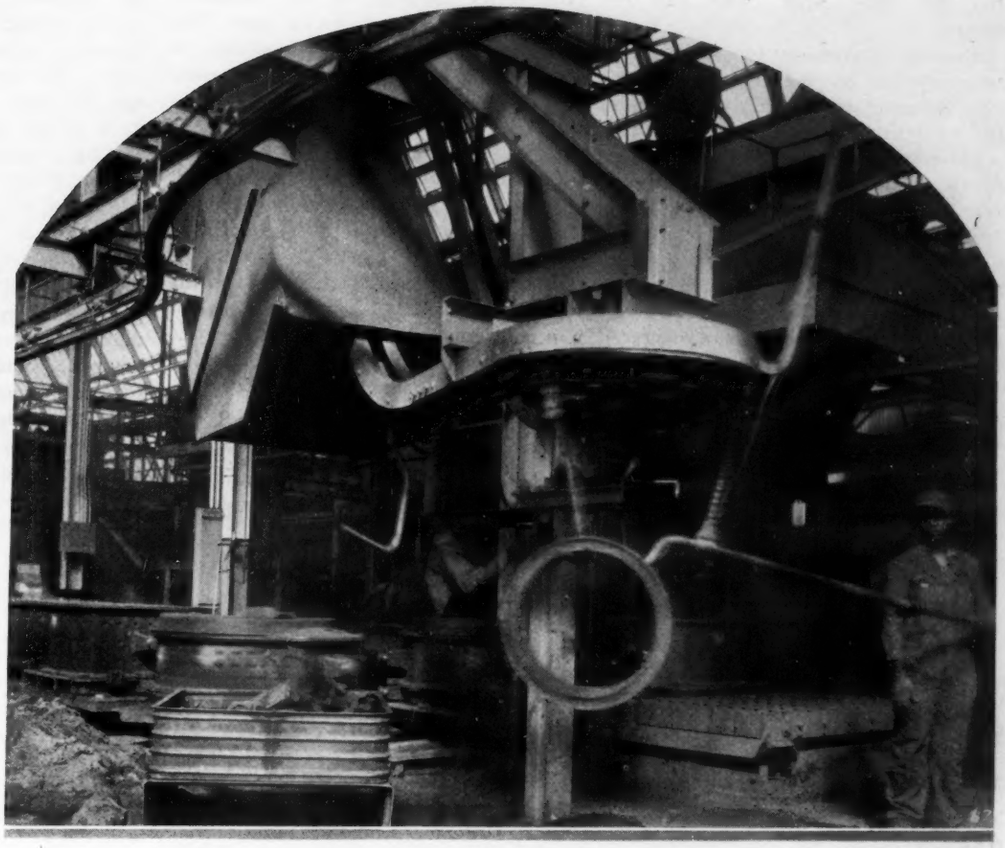
Charging equipment, including the yard crane, the buckets, the charging floor hoist and the monorail and switches leading to the doors of the two cupolas were supplied by the Shepard Electric Crane & Hoist Co., Montour Falls, N. Y.

The ground floor back of the cupolas is on the same level as the floor of the foundry. A concrete lined pit, 5 x 5 x 30 feet, extends from the outside of the floor to a point 8 feet inside the wall of the building. With the exception of an opening near the bottom through which the buckets move in and out as shown on page 1133, the wall is built in the form of a rectangular shaft extending upward to an enclosed opening in the steel charging floor.

THIS is the second and concluding article describing the new stove plant of the Peninsular Stove Co., Detroit. The first article was published in the April 12 issue of IRON TRADE REVIEW.—The Editors.

An electrically-operated car equipped with a scale made by the American Kron Scale Co., New York, moves backward and forward on a narrow gage track in the bottom of the pit. This car has accommodations for two charging buckets with tops that come flush with the floor. Each bucket has a capacity for an entire charge of 2000 pounds of iron, 350 pounds of coke and 50 pounds of limestone. The iron charge is made up of 200 pounds of high silicon pig iron, 800 pounds No. 2 foundry pig iron and the remainder foreign and domestic scrap.

Filling the buckets is greatly facilitated by having the tops flush with the floor. Lifting is reduced to a minimum since the men simply lift the material from the floor and drop it into the bucket. Scrap and coke are piled on one side of the pit close to the edge. Two varieties of pig are piled in a similar position on the other side. The scale operator moves the car backward and forward to the most convenient point to eliminate



THE inside of a radiator mold is rolled over on a planed cast-iron plate instead of a drag. The core is rammed on an adjoining machine not shown in the illustration.

any walking on the part of the loaders.

Iron is lifted from the stockyard with a magnet suspended from the crane and dropped on a sloping wall down which it slides by gravity to the level space provided for the purpose close to the edge of the pit in which the scale car operates.

Coke is handled in a slightly different manner by a specially-designed grab bucket which it is claimed does not crush the coke. Thus all breeze is avoided. Coke falls by gravity from the bottom of the railroad car into a concrete hopper under the track. This hopper has capacity for a full carload and tapers on all four sides down to a rectangular opening, 3 x 6 feet, at the bottom. Coke falls through the opening into a steel box with a sliding bottom.

The bucket in closed position is lowered into an adjoining pit provided with vertical guide rails on either side curved at the bottom. The curves carry the bucket under the steel box where its weight trips a lever and allows the coke to fall into the bucket which has a capacity of approximately 2 tons. The crane operator's cab is located directly above and when he sees that the bucket is nearly filled he commences to hoist. This action releases the trigger which closes the bottom of the steel box. The bucket then is lifted out of the pit and conveyed to a point close to the scale car station where it is lowered close to the floor or the existing coke pile. The bucket then is opened in the usual manner and the coke falls out gently. Coal for the boilers and limestone for the cupola are handled in the same manner.

Each cupola holds 15 charges when filled to the charging door which means that the last charge is in the cupola two hours or more before the close of the day. During this two hours the charging man operates the yard crane and replenishes the coke and iron piles for the following day.

How Loading Is Accomplished

In practice the scale car with one loaded bucket in position is advanced to a position under the shaft leading to the charging platform. The operator above lowers an empty bucket to the car. The crane hook is detached from this bucket and hooked into the loaded one. The loaded bucket then is whisked aloft and the scale car with the empty bucket is backed to a point where the bucket may be reloaded. The operation is repeated steadily until a sufficient amount of material has been taken aloft for the day. In an emergency several loaded buckets may be stored on the charging floor, but under normal conditions the floor is kept clear.

The hoist for lifting the buckets is suspended from a monorail in the form of a Y with the single stem over the open shaft and with a branch leading to each cupola. A suitable switch at the junction controlled from the floor serves to guide the load toward either cupola.

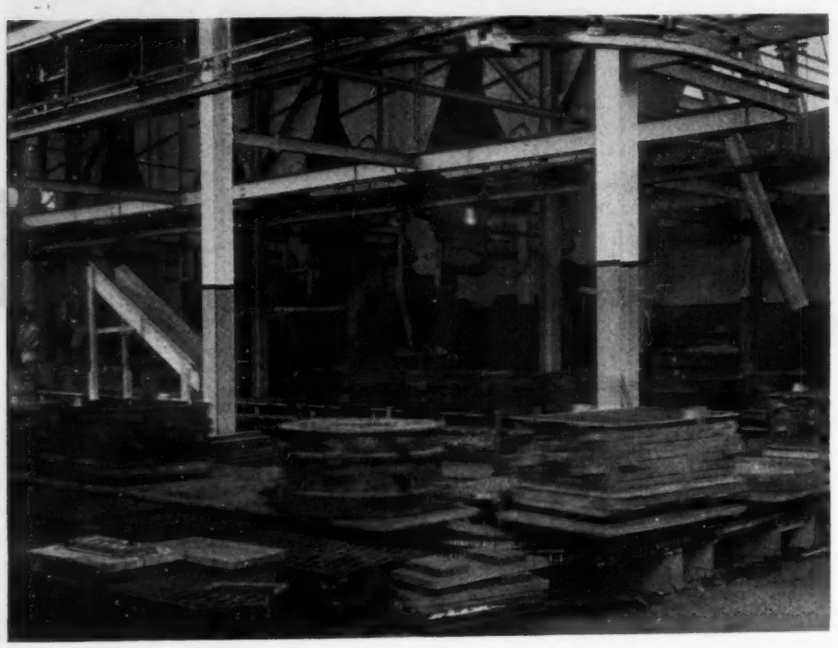
After the loaded bucket enters the cupola, the operator releases a catch which discharges the load through a drop bottom into the cupola. In the beginning the bucket is lowered any required distance into the cupola to minimize the fall of the material. Gradually as the column of stock rises the distance is decreased. Thence forward the top of the column is maintained flush with the charging floor until all the material for the day has been placed in the cupola. When the bucket is lowered to the floor the two half bottom doors snap into closed position and are locked.

Two 72-inch cupolas built by the Northern Engineering Works, Detroit, are employed alternately each day for melting the iron. Each one is double lined to a working diameter of 54 inches with a bosh 40 inches diameter above the tuyeres. A cast-iron ring projecting 4 inches from the wall opposite the door opening acts as a bumper and prevents the entering steel bucket from smashing the brick in that vicinity. When the cupola is relined the superintendent proposes to

line all this area with cast-iron blocks.

Blowing equipment for the cupolas was supplied by the General Electric Co., Schenectady, N. Y., and includes one centrifugal type compressor, with a potential capacity of 7500 cubic feet of air per minute; one direct-connected constant speed induction motor rated 58 horsepower—220 volt, 3 phase, 60 cycle. The load is taken by the motor in the usual manner through a starting compensator. Under present conditions the blower is not operated near its ultimate capacity.

The two cupolas are located approximately 50 feet from the east end and 30 feet from the south wall of the foundry building. Each one is



Molds for grates and firepots are made on the machine shown in the background. The power driven conveyor carries them past the pouring station to the shakeout

enclosed on three sides by a curtain wall which extends up to the level of the furnace bottom. The wall prevents splashes, accidents and a general mess when the bottom is dropped at the close of the day's run. Iron is melted continuously all day except during the 30-minute lunch period at noon.

Molten iron from the cupola is tapped into a 2-ton ladle mounted on suitable stands and equipped with a skimmer spout and tilting mechanism. The iron is poured from this mixing ladle into a number of 1000-pound ladles suspended from a monorail which extends to the various pouring stations. Furnace castings are poured direct from these ladles. Small miscellaneous parts on the third unit, also the stove plate castings made in the south section of the foundry, are poured from hand ladles filled from the ladles hanging on the monorail.

Green sand cores shown on page 1130 illustrate an interesting departure in the method of molding furnace castings. The drag flask has been eliminated. The core is left upon the bottom plate and the cope is closed down over it to make a complete mold. These molds and all other molds made in this foundry, with the exception of those made by hand, are made on molding machines furnished by the Osborn Mfg. Co., Cleveland. This company designed the layout, furnished the equipment and supervised the installation of every thing required for preparing and distributing the sand and making the molds.

An aluminum pattern inside a stiff cast iron frame is mounted on the table of a jolt rollover molding machine. The pattern, which in this instance really amounts to a corebox, is filled with sand from an overhead supply bin. The sand is jolted, struck off and then a planed cast iron plate provided with trunnions on the sides and strengthening ribs on the bottom, is guided into place by suitable pins and clamped in position on the bottom of the pattern-corebox. The assembly is raised and rolled over and a transfer car is pushed underneath to receive the load.

Equipped With Leveler

The transfer car is equipped on the face side with an equalizer leveling device which adjusts itself to the bottom of the plate. It is locked in this position by a crank handle attached to a horizontal shaft. The clamps are released and the pattern-corebox moves straight up, leaving the body of sand supported on the cast iron plate. The transfer car is pulled out and the part of the mold lying upon it is picked up by an air hoist operating through an equalizer beam and pair of slings, and placed on the nearby power driven conveyor. The pattern-corebox is revised and lowered on to the jolting table where the sequence of operation is repeated.

A second machine is employed for making the cope. This machine is equipped with a stripping plate through which the pattern sinks before the cope is removed. The cope is not rolled over. It is taken directly by an air hoist and lowered upon the part previously described. A runner basin is formed on the upper side of the cope. The radiator section shown on page 1130 is poured through a circular basin connected to several pencil gates located over the highest point on the core. All the molds in this department are made in cast steel flasks machined on the joints.

Cupolas mark an imaginary boundary between the continuous foundry and a section where a wide variety of small stove and furnace parts are made for the repair and replacement market. Orders for some of these castings come from customers who bought the original units in the early days of the company's history. This section also contains a single floor in the southeast corner where aluminum is melted and poured into molds for patterns. The pattern shop occupies a space 30 feet square in the northeast corner of the building. It is equipped with the necessary machinery and other equipment for the production of patterns in wood, plaster and metal. The designing and drafting department is located above the patternshop.

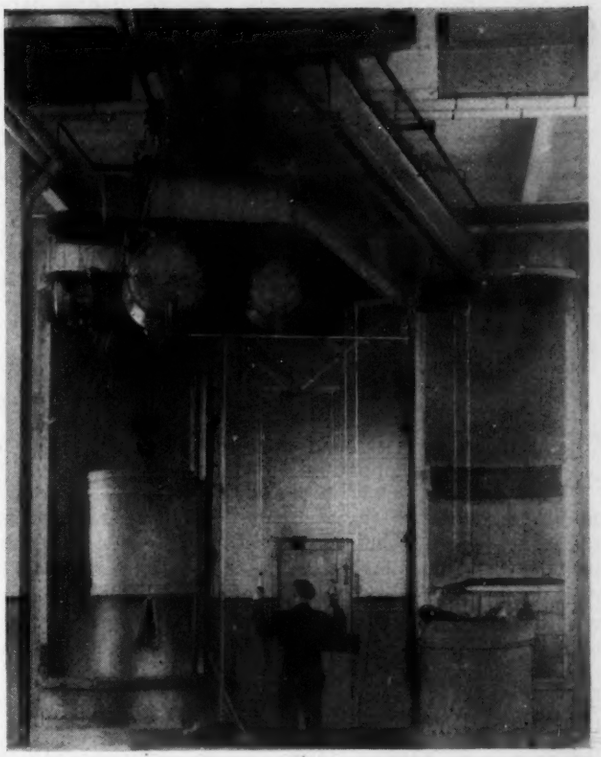
Coremakers carry on their work in an area close to the patternshop and directly across the foundry floor from the cupola. Equipment in this department includes a revolving paddle type mixer made by the Standard Sand & Machine Co., Cleveland, and a pneumatic machine made by Wm. Demmler & Brother, Kewanee, Ill., employed for filling certain coreboxes with prepared sand under pneumatic pressure.

Sharp sand bonded with oil is employed in making the cores which are small and in some cases intricate. Metal coreboxes are employed exclusively and practically all the cores are dried in shells which prevent sagging or distortion of the cores during the drying period. A rack made up of six shelves, one above another, is stationed between the core-

makers' long bench and the core oven located close to the outside of the west wall of the pattern shop. The coremaker lifts the core from the bench, on a plate or in a dryer shell, turns around and places it on one of the unoccupied shelves of the rack. A second man lifts the core from the shelf, turns through an arc of 180 degrees and places it on one of the numerous shelves in a gas-fired oven built by the company's own sheet metal fabricators. Hand ladles are dried in one of the lower sections of the oven.

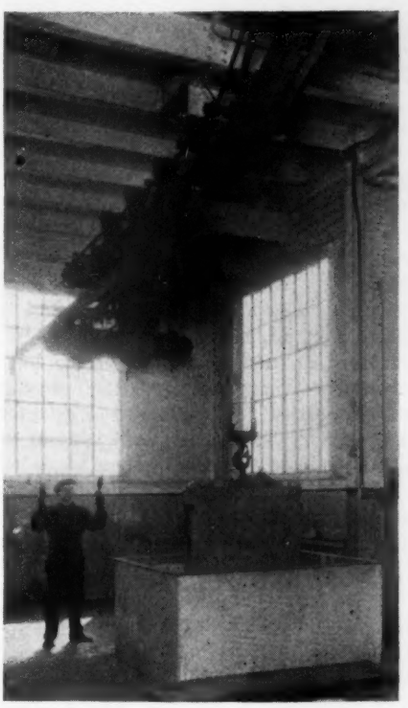
With the exception of the furnace castings that are sandblasted, all the castings are cleaned in a battery of nine tumbling barrels, five rectangular, 3 x 3 x 5 feet; four cylindrical, 2½ x 5 feet, made by the Royersford Foundry & Machine Co., Royersford, Pa. The castings afterward are ground and trimmed on a battery of single and double enclosed grinding wheels made by the United States Electric Tool Co., Cincinnati.

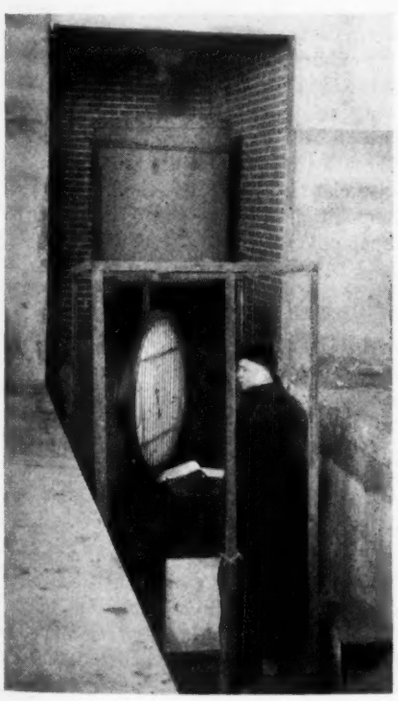
CHARGES for the cupolas are made up in buckets mounted on a scale car operating in a concrete lined pit in the floor, as shown in the lower illustration. Buckets are hoisted through a shaft extending from the ground to charging floor. By throwing a switch in the overhead track the buckets may be sent to either cupola.



Electric Cast Iron Has Several Advantages

Electric furnace cast iron is stronger, tougher, and more dense than cupola iron, and a higher recovery of metal in casting can be obtained as a result of the higher pouring temperature, according to technical paper No. 418 on "Electric Furnace Cast Iron," just issued by the bureau of mines, Washington. This paper reports an investigation on the subject conducted by C. E. Williams and C. E. Sims under a co-operative agreement between the bureau and the college of mines, University of Washington.





According to the investigators, cast iron scrap of high-sulphur content can be converted into high-grade cast iron, low in sulphur, either by melting directly in the electric furnace or by refining molten metal from the cupola. Large additions of steel scrap may be used if desirable, or steel scrap can be used entirely and synthetic cast iron made. In the electric furnace a superior iron, having about twice the strength of ordinary cupola iron, can be made. Transverse strengths of 5000 to 6000 pounds on standard bars of synthetic gray iron have been obtained repeatedly, and tensile strengths above 40,000 pounds per square inch are common.

Copies of this 48-page bulletin giving complete details of the investigation and a summary of advantages and costs may be secured from the superintendent of documents, government printing office, Washington, for 10 cents each.

Traces Main Source of Enameling Blisters

Blisters on enameled cast iron ware may be traced either to faulty enamels and process of application or to the castings themselves is the conclusion reached by the metallurgical and ceramic divisions of the bureau of standards. Not only do different irons have different blistering tendencies, but successive heats of the same iron may have different blistering tendencies. The main source of blisters from the irons used in this work was overcome by removal of a thin surface layer of the castings, through either mechanical or chemical means.

An address, "Structural Steel, Its Works, Omaha, Nebr., before the Kansas builders' Forum, has been reprinted and is being distributed by the Midwest Structural society.

Spain's First International Foundry Congress Proves Success

Representatives of Leading European Countries, England and United States Participate—Many Papers Contributed —Exhibition Also Viewed by 300 Delegates in Barcelona

By Vincent Delport
European Manager, Iron Trade Review

THE first foundry congress of international importance to be organized in Spain was held in Barcelona April 11-14, and was attended by more than 350 delegates, including the Spaniards and visitors from nine countries. The convention was organized by the Union Industrial Metallurgicas of Barcelona under the patronage of the Spanish minister of labor and of the International Committee of Foundry Associations. An official delegation headed by don Cesar Serrano, representing the government, and don J. de Miquel, president, Union Industrial Metallurgicas, assisted by J. M. Espana, vice president for Spain of the Association Technique de Fonderie de Paris, received the main body of visitors.

At the opening meeting the chair was held by General Barrera, governor of the province. Don Jose Serrat Bonastre, vice president, Union Industrial Metallurgicas, delivered an address of welcome following which the head of each foreign delegation replied in the name of his countrymen. Don Cesar Serrano, who is president of the Spanish permanent committee of testing materials, then addressed the congress. He also read telegrams of greetings that he had received from the king of Spain and the head of the government, General Primo de Rivera. The congress was declared open by General Barrera and the visitors were conducted to the exhibition.

Advantage Is Questioned

The first technical session was held Thursday, April 12. J. M. Espana first took the chair, and the meeting opened with a paper by Joaquin Ferrer of Maquinista y Fundaciones del Ebro, S. A., Zaragoza, entitled "The Thermic Balance in the Modern Cupola." In the discussion that followed Ivan Lamoureux, Liege, Belgium, said that he does not see the real advantage of additional tuyeres except from a purely theoretical point of view. He would like to see a practical test effected with two cupolas operating together, one with the additional tuyeres, the other without them. This practical test should be conducted during the time necessary to obtain results, and then it would be possible to know whether the second row of tuyeres is really an improvement. Dr. V. Prever of the Fiat automobile works, Italy, said that at the Fiat foundries this test is actually being made, but no conclusions have been drawn.

Utilized Alloy Scrap

The second paper was by Jose Salgado, Fabrica de Trubia, on "The Molding and Casting of a Locomotive Cylinder." Points emphasized in this paper are the secondary importance of flexion tests, and the fact that the author utilized nickel steel scrap in the cupolas, which gave him iron with as much as 1 per cent nickel with a correspondingly good tensile strength. This was done with coke of poor quality, yet the results were good, not so much from the point of view of the tensile strength, but especially from that of other physical properties. The velocity of pouring was 17 kilograms (37.5 pounds) per second.

M. Audo, of the Compagnie des Chemins de fer de Paris-Orleans, France, said that he had reached 55 kilograms (121 pounds) per second for a 5.5-ton casting. Ivan Lamoureux stated that he had arrived at a formula for the velocity of pouring, and had found the weight has no influence. It is the height and the thickness of the casting that count. V. C. Faulkner said ingot molds have been cast in Great Britain at a velocity of 44 kilograms.

The next paper was entitled "Foundry Terms," by Jose Canameras Gonzalo. J. M. Espana explained that the Association Technique de Fonderie of Paris is not exclusively a French organization, but includes foundrymen of other countries, such as Spain and Italy, and that this enables co-operation in studying such questions as that referred to in the paper.

The chair was then taken by V. C. Faulkner who invited Dr. R. Moldenke to read the exchange paper of the American Foundrymen's association. The subject was "Present Day Cast Iron and Its Improvement." It was decided on the author's suggestion that any discussion would be done in writing. The exchange paper of the Institute of British Foundrymen was then presented by its author, Dr. Everest, who had chosen for his subject "The Use of Nickel in Iron Foundry." Replying to a question of Dr. Dresden on the effect on the cost of production of the addition of 1 to 2 per cent nickel, the author said that in England it is about 30 shillings ($7.30) per ton.

Ivan Lamoureux then took the chair and asked Prof. Pisek to present the Czech exchange paper on "The Microscopic Study of the Influence of Phosphorus on Reheated Cast Iron," by R. Bazant. Prof. Portevin said the use of the dilatometric method must have been of great assistance in the author's investigations in showing the state and the quantity of the combined carbon.

"Foundry Sands—A New Testing Method," was the subject of the Belgian exchange paper presented by G. Masson and H. Compere. Prof. Portevin said that the sands should not be only characterized by their chemical composition, but the structure also is important and tests should be devised to cover that property.

Stresses Importance of Layout

At the next morning's session Dr. Geilenkirchen first took the chair. A paper was presented by Dr. V. Prever, chief metallurgist, Fiat works, Torino, Italy, on "The Technical and Scientific Organization of the Fiat Foundries." The exchange paper of the Association Technique de Fonderie de Paris, by Leon Thomas, president of the association, was entitled "By Improving Methods, Production Costs Will Decrease." Ivan Lamoureux stated that the original layout of a foundry is of the greatest importance

and should be devised with a view to further possible extensions.

Com. Ing. Carlo Vanzetti followed as chairman and invited Olering Langenohl to present the German exchange paper entitled: "A Summary of the Present Day Methods to Obtain High Quality Cast Irons and Considerations on the Cupola." This paper was discussed with the next by Amador Gonzales Soto of the Armament Factory of Oviedo, whose subject was "Modern High Resistance Cast Irons."

In opening the discussion Carlo Vanzetti said the problem is not yet viewed from the right angle. There are at present too many variables under consideration. Prof. Portevin remarked that progress has been made more especially from the point of practical results. Cast iron always will be inferior to steel with regard to mechanical properties, but it has certain characteristics which make it indispensible and which must be maintained. Improvements have been in the direction of better mechanical qualities, but other points should be considered, such as the skin of the casting, and particularly the aptitude of the metal to fill the mold. The high-duty cast irons evolved today are sometimes difficult to cast. With low carbon contents and superheating a high casting temperature must be reached, and this has tended to modifications in the design and operation of the cupola. The drawback of the cupola is that the fuel is mixed with the metal, and it is impossible to maintain a constant composition of the metal. The speaker thinks that the duplex process by using the cupola and the electric furnace will be the development of the future.

Jaime Coll Soriano delivered a paper on "A Rapid Method of Calculating Production Costs in the Foundry." The session ended with a paper by Isidro Sans Darnis, of the steel works of Viscaya, on "Test Pieces for Nonferrous Metals."

At the last session the chair was held in turn by Jose Serrat Bonastro of Maquinista Terrestre y Maritima, Barcelona; Prof. Portevin and don Cesar Serrano. The first paper was by Prof. Portevin whose subject was "Control of the Manufacture in the Foundry." The author described various methods of control he recommends for efficient operation of a foundry. This was followed by "Uses of Cast Iron in Railroad Works," by Jose Manuel Lacleta, of Casa Mariano Corrale Hijos.

The next paper by Antonio Lafont, of the Fabrica Nacional de Toledo, on "Semisteel in Spain," gave rise to a discussion especially from the point of view of the manufacture of shells. Carlo Vanzetti said semisteel is not of much practical use for current castings that have variable thicknesses. It is difficult to obtain a constant composition in the cupola but he has obtained good results by the duplex process. Following a paper by Jose Serrat Bonastro on "Relation Between the Tensile Strength and Flexion in Cast Iron Test Pieces," Dr. Dresden of Holland said the formulas of resistance of materials do not apply to cast iron.

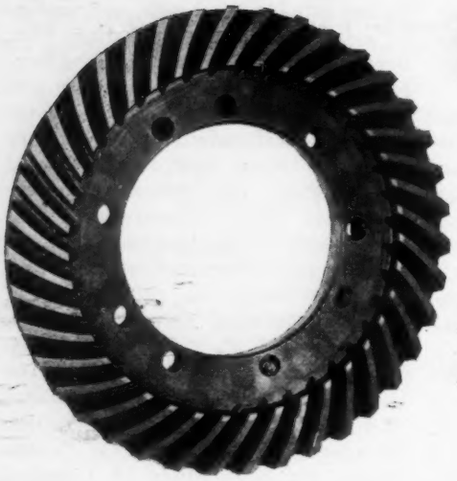
The Dutch exchange paper, "Experiments With Iron Rods Embedded in Cast Iron," by Dr. Dresden and D. H. Stoffel, was then presented. Ivan Lamoureux stated he had found it is the phosphorus that renders the connection of the rods with the casting fragile. The use of hematite pig iron prevents this difficulty but there is no welding of the rod in that case. In conclusion Mr. Lamoureux does not believe in embedding rods, and prefers to screw them in the casting. Sen. Brunent explained his method of embedding iron tubes in certain cast iron vats. After a number of experiments he found best results were obtained when the tubes had been reheated and pickled. The following papers were read without discussion: "Cast Iron Testing," by Agustin Plana, of the Central Laboratory of Artillery; "A Contribution to the Study of Foundry Technical Terms," by J. M. Espana and J. C. De Sequeria, engineer at the Portuguese railroads; "The Laboratory for the Small Foundry," by Francisco Cuesta, of the Ordnance Manufacture of Seville; "A Contribution to the Study of Chemical Analysis and Tests," by don Cesar Serrano; "A Contribution to the Study of the Analysis of the Total Carbon and the Present Tendency," by Erneste Llamas del Tore, of the Manufacture of Arms of Oviedo; "The Physical Properties of 78/28 and 90/10 Brasses in Relation to the Final Reduction and the Previous Reheating," by Jose Fernandez Ladreda.

Visits were paid to the works of the Hispano-Suiza Automobile Co., the Maquinista Terrestre y Maritima, locomotive works; the Fabrique de Compteurs and the Grau Foundry, the Mas-Baga and Escorsa foundries, the Sert works and the Industrial school. About 300 delegates attended a banquet on Saturday. The next day a large number of them left for the post-convention tour, which included Valencia, the Sagunto works, Cordoba, Sevilla, Toledo, Madrid, Bilbao and San Sebastian. Various works were visited on the way.

The exhibition which was held in

(*Concluded on Page* 1139)

Barcelona, where 300 delegates to Spain's international foundrymen's congress met recently, is one of that country's principal centers of machinery manufacture. In this view are the Arch of Triump and Palace of Justice.



Build Ford Ring Gear from Hot Rolled Special Shapes

Electric Furnace Employed for Heating Stock to Forming Temperature—Gap Closed by Welding

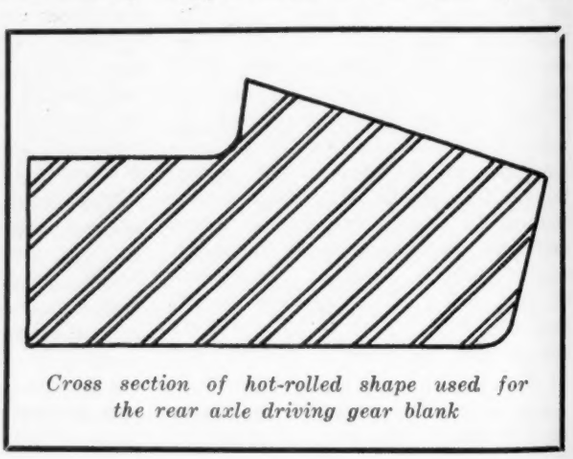
By John D. Knox

OCCUPYING a small amount of floor space near the extreme end of the Ford Motor Co.'s 14-inch merchant mill at Fordson, Mich., is a department which you would expect to find housed in a fabricating building and not within close proximity of a rolling mill hot bed. Yet the execution of certain operations involved in the fabrication of three particular automotive parts at this particular location minimizes handling and transportation charges. Steel rolled to special shape on the merchant mill is taken direct from the hot bed and formed into blanks for the starter gear and differential ring gears for the Model A truck and passenger automobiles manufactured by the Ford company. This mill also supplies the channel section and other shapes from which the banjo section of the rear axle housing is made, as described in a previous article.

A bar with its ends kinked into a slight curve as a result of the first forming operation is shown between the dies of the second forming machine ready to be bent into a circle. A completed differential gear is shown above

The steel from which the differential ring gear for the Model A is fabricated is flat on one side; on the other it is step-shaped, that is, the bar is thicker from the center of the top surface to one edge than from the center to the opposite edge. The thick section, which later becomes the outer part of the ring gear, provides sufficient depth for the machining of the teeth. The bars rolled in long lengths on the merchant mill of the company as previously mentioned, are brought to rest on the hot bed. Near the extreme end of the cooling bed electrically-driven shears are provided for cutting the bar to specified lengths, each length being suitable for forming one differential ring gear weighing 11½ pounds for the Model A.

Fabrication of the ring gear starts with the heating of the special rolled section, each piece progressing from one operation to another in a straight line course. The furnace in which the steel is brought to the desired temperature is 18 feet long, 4¼ feet wide and 5¾ feet high on the exterior and instead of being gas fired, the unit is electrically heated. High-volted current is stepped down to 220 volts by two



Cross section of hot-rolled shape used for the rear axle driving gear blank

transformers and then converted into heat by 54 carborundum heating elements.

A temperature of 2050 degrees Fahr. is maintained although a maximum temperature of 2450 degrees Fahr. can be delivered should conditions warrant. The stock, approximately 1 x 2½ x 20 inches long, is dropped through an opening at the front or hot end of the furnace and automatically is moved over the entire length of the hearth by a special rocker beam mechanism. Within 15 minutes the steel is heated to the required temperature of 2050 degrees Fahr. Approximately 240 pieces, weighing 12½ pounds each, are heated an hour. The heating chamber is 12 feet long, 2 feet wide and 6 inches high. Incidentally the furnace after

FIFTH and concluding article of a series describing the unique metal-working processes developed and adapted by the Ford Motor Co. in building its new automobile. A general discussion of welding, forging and stamping was presented in the March 22 issue; a description of the methods employed for fabricating the rear axle assembly in the April 5 and 12 issues; and the details involved in the forming and the welding of the fan and gas tank assemblies in the April 26 issue.

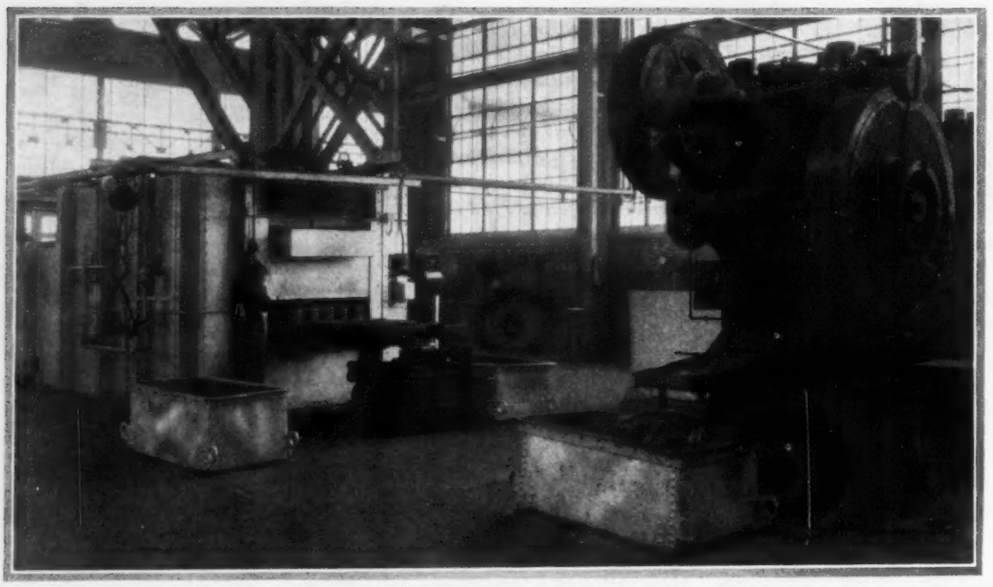
slight curve. The bar then is transferred to a similar type forging machine equipped with dies to form the piece into a ring. A bar after having been subjected to the first forging operation is shown on page 1136. The partially formed bar, with its flat side down is positioned between a stationary disk at the front and movable dies at the rear. The movable dies, each semicircular in shape, are made to close on the piece thus forcing its two ends together to form a circle. Upon completion of the closing operation the dies are returned to the starting position by heavy coil springs. On this page is shown the bar after having been subjected to the second forging operation.

Forging causes some of the scale on the surface of the steel to crack and since this material is harmful to dies it is eliminated by bringing the steel in contact with a motor driven wire brush. The ring is placed between a die and punch in a forming press and is restruck to obtain the proper shape and contour before welding which is the next operation. The machine for welding the two ends of the ring together is equipped with a transformer to reduce the current to low voltage and heavy copper clamping jaws which hold the ring in alignment and serve as electrodes. After the ring is clamped in a horizontal position by the manipulation of two levers, as shown on this page, at the front of the welding chamber, which serves to protect the operator from sparks, is closed. The operator then grasps a lever located at one end of the machine and by pressing a trigger switch at the end of the lever causes current to be applied. Meanwhile, the lever is being moved slowly through an arc of a circle until the steel reaches a fusing temperature, then the current is shut off and the operator quickly pulls the lever to its maximum position. This causes pres-

Dies in the second forging machine which form the piece into a ring. Below is shown a ring gear blank held in the jaws of a welding machine

a 10-hour shutdown can be brought to the operating temperature in 20 minutes. The outstanding feature of this furnace is the uniform temperature control and the maximum heating capacity of 3000 pounds of steel an hour at 2200 degrees Fahr. With automatic feed and uniform temperature it is self-evident that both the heat penetration and temperature of the delivered stock is under control.

The heated bar is given its first forming operation in a forging machine of the horizontal type. The blank is laid flat side down on the table. The operator by pressing a foot treadle causes the dies to move forward and form the ends into a



STRAIGHTENING press which gives ring gear blank its final shape. Charging end of the annealing furnace, monorail system and charging table are shown in background.

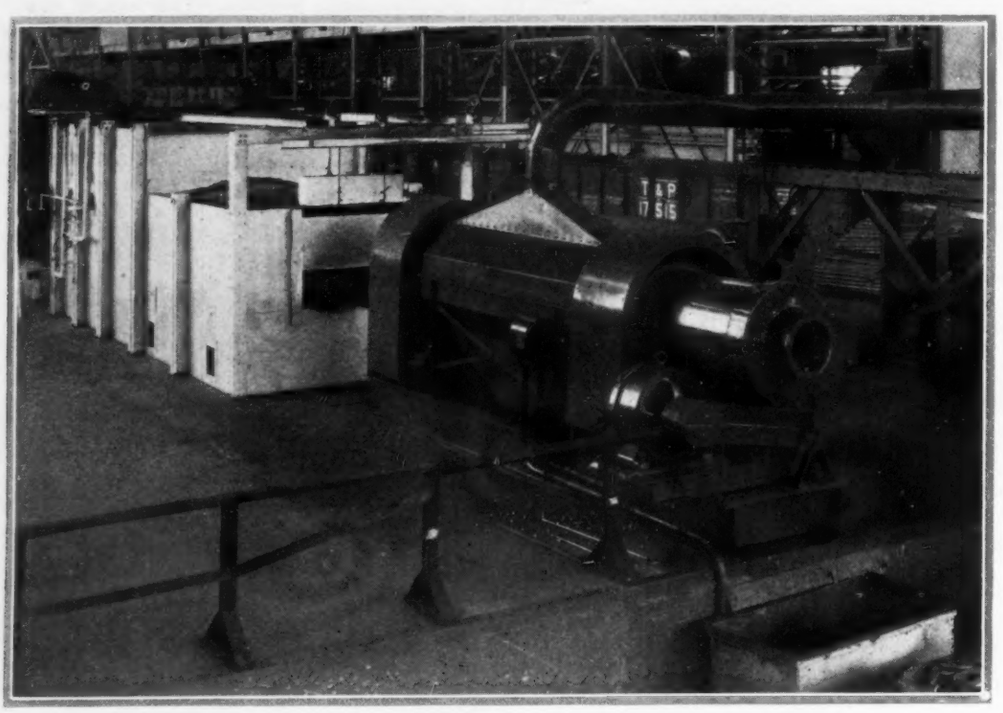
sure to be applied to the piece through a toggle arrangement, thus completing the weld and squeezing out the overheated metal. A ring gear blank welded at the junction as described is shown in an upright position on the bed of the welding machine on page 1137.

Following the welding operation the ring is placed on edge in an incline trough and rolls to the front side of a trimming press. Here any excess metal is removed by trimming dies. The piece then passes in sequence through sizing and straightening presses finally being discharged into a steel plate container as shown in above view. When filled, the box is moved about 10 feet by an overhead traveling crane to the charging end of a gas-fired annealing furnace.

Annealing removes any hardness imparted to the steel by the various operations and leaves the blank suitable for subsequent machining. The annealing furnace is 8 feet in cross section and 23 feet long. It is fired with coke oven gas through two burners installed on each side near the charging end. By this arrangement the front part of the furnace serves as the heating zone and the rear section as the cooling zone.

Served by Monorail System

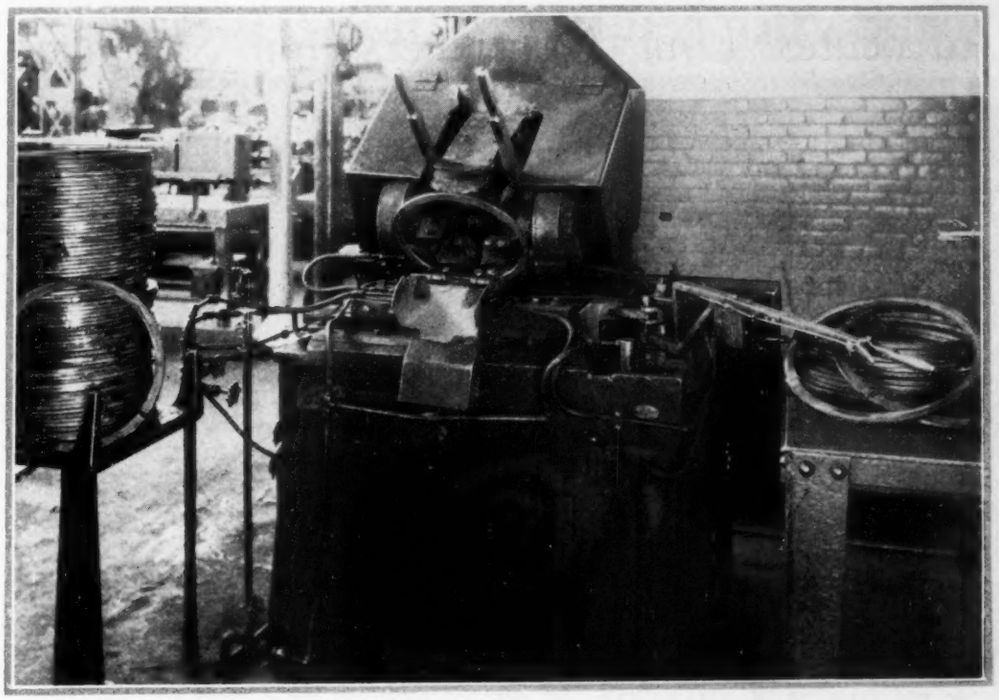
Suspended outward from the top of the furnace along the charging and discharging end and side is a monorail which carries a chain block and a pair of tongs. The tongs grip a tray which holds from 45 to 50 ring gear blanks arranged in various piles. When loaded the tray is moved to the charging end of the annealing furnace and lowered on a 7-foot charging table. This is equipped with an electrically driven pusher which facilitates charging the material into the heating zone where a temperature of 1650 degrees Fahr. is maintained automatically. The trays slide on steel rails while in transit through the furnace. A fresh tray is pushed into the hearth every 15 minutes, each batch of steel being in the furnace six hours. Following annealing the blanks are cleaned in a tumbling barrel, shown on this page, installed a few feet from the rear of the furnace and finally are discharged into a steel box. The ring gear blanks then are transferred to a separate department where the various teeth are machined.



ANNEALING furnace and tumbling barrel located at the end of the department set aside for the fabrication of the blanks for the differential gear and the starter gear.

An interesting practice followed by the Ford company in the manufacture of starter switches is the continuous and automatic soldering. The starter button is made of two steel stampings, one being 2⅞ inches diameter which forms the base and the other a tube ⅞-inch diameter and 2¼ inches long. In the assembly of these two parts the four ears on the tube are inserted in slots in the base stamping and then bent downward on the interior to hold the two sections intact.

After inserting a ring of wire solder in the tube the assembly is passed through an automatic machine consisting of a long metal box and a loop-chain conveyor. The assemblies are dipped into acid by an operator and then placed on the conveyor which moves them beneath a series of gas burners and finally through jets of water. The conveyor automatically discharged the assemblies into containers.



ONE of the many machines employed for welding the starter gear blanks. The copper clamping jaws, which hold the steel ring in the welding position are water cooled.

Committee Plans Third International Congress

At the Barcelona congress, the International Committee of Foundry associations held its meeting on Friday, April 13. The chair was held by Dr. Ing. Geilenkirchen in place of Dr. Werner who was unable to attend, and who represented the German associations. Dr. Werner, president, Verein Deutscher Eisengiessereien, is chairman of the committee for the current year. Great Britain was represented by V. C. Faulkner, past president of the Institute of British Foundrymen; France by H. Magdalenat, vice president of the French association; Belgium by Ivan Lamoureux, vice president of the Belgian association; Spain by J. M. Espana; Italy by Com. Ing. Vanzetti; Czecho-Slovakia by Prof. Mont. Pisek; Holland by Dr. Dresden. The American Foundrymen's association was represented by V. Delport, European member of the committee of international relations. T. Mackemson, secretary, Institute of British Foudryman, acted as honorary secretary.

The Dutch association was formally received as a member. Preliminary arrangements were then made concerning the third international foundry congress to be held in London, Eng., in June 1929, and at which it is expected that an American delegation will officially represent the American Foundrymen's association. A discussion took place relating to a dictionary of foundry terms in several languages, to which the committee has given its support. It was decided that a list of French terms would be prepared, with the definition of each term. Each term is to have a reference number. This would constitute the dictionary of French terms. Each of the other countries will prepare a dictionary on the same lines, and the reference numbers will enable any word to be found with its definition in one language or another. The proposition is to be put up to various foundry associations for their consideration.

Congress Proves Success

(*Concluded from Page* 1135)

connection with the convention was composed mainly of raw materials obtained in Spain and castings manufactured in Spanish foundries. Hijo de Miguel (Mateu) exhibited grinding wheels and machines of The Norton Co. J. Palau Ribes, Barcelona, showed grinding wheels manufactured by the Carborundum & Electrite Co. of Dresden, Germany. The German firm of Siemens-Shuckert exhibited electric trucks for transportation in the foundry. A complete sand blast machine with rotary table was shown by Establissements Sisson-Lehmann of Charleville, France. Anglo-Espanola de Electricidad, S. A., displayed furnaces. Maquinaria Anglo-Americana, Barcelona, showed grinding wheels of the American Emery Wheel Works, Providence, R. I., and from the Lion Grinding Wheels Ltd., Brockville, Ont. Fenwick Freres, Paris, showed their hoists and grinding machines, a sand riddle and hoists. A hardness testing machine was exhibited by C. Lana Sarrate, Barcelona. Urbano Eggenberger, Bilbao, exhibited a molding machine and a sand mixing and preparing machine, in working order. Badische Maschinenfabrik of Durlach, Germany, displayed some of their foundry equipment, including a heavy-duty molding machine.

Tin plate is exported from the United States to a larger number of markets than from any other producer of this commodity.

Materials Handling Engineers Hold First National Meeting

MORE than 200 engineers and guests registered at the meeting in Philadelphia. Technical sessions were held Monday and Tuesday, April 23 and 24, and the first annual banquet was held Monday evening with J. G. Hatman, chairman of the Philadelphia section, acting as toastmaster. Inspection trips were arranged to various plants in the Philadelphia district, including the Atwater-Kent Mfg. Co., U. S. Cast Iron Pipe & Foundry Co., Victor Talking Machine Co., and Curtiss Publishing Co. The executive committee of the materials handling division consists of P. H. McLain, sales agent, General Electric Co., New York; J. A. Shepard, vice president of engineering, Shepard Electric Crane and Hoist Co., Montour Falls, N. Y.; F. D. Campbell, industrial engineer, Orange, N. J.; M. W. Potts, sales engineer, Alvey Ferguson Co., New York; G. E. Hagemann, managing editor *Manufacturing Industry;* and C. D. Bray, vice president and New York manager, Mead-Morrison Mfg. Co., Boston.

Among those registered were 32 materials handling manufacturers and 20 materials handling companies. Detroit has requested the next annual meeting of this group division.

Advocates Unit Containers for Shipment of Freight

MATERIAL handling problems from the manufacturer's standpoint will be greatly simplified if he will specify delivery date when purchasing raw materials and will order quantities just sufficient to cover current needs, according to C. D. Young, general purchasing agent, Pennsylvania railroad, who spoke at the dinner of the first meeting of the national materials handling division of the American Society of Mechanical Engineers at Philadelphia last week. The meeting was well attended and the discussions at technical sessions clearly indicated the joint interest in this branch of industry.

Mr. Young, in discussing the control of incoming material, pointed out that storage at a manufacturer's plant is expensive. Not only does it require double handling, use of valuable space and tying up of working capital, but it means a great deal of additional paper work. The tendency today is to shift the burden of storage upon someone else. The present reliability of railroad transportation makes the freight car, enroute, an excellent storage medium.

A manufacturer who uses a carload of bulk material, say of molding sand, every day or every two or three days is able to specify delivery of a carload every day, or, every two or three days as required and to have this delivery date met by the supply house with remarkable accuracy. The material then may be dumped into active working hoppers without going to storage. Shippers sometimes find it convenient to route part of a shipment the long way around in order to delay its delivery date and not have the entire order descend upon the manufacturer for unloading at one time.

Hugh J. Mehren, vice president, McGraw-Hill Co., New York, who spoke at the dinner, emphasized the significance of this newly created materials handling division. He said that advancement in other lines, that is, in the development of labor-saving devices for production and in the increasing strength and usefulness of materials and in ingenuity of design, had progressed more rapidly than had improvements in material handling methods. In the speaker's opinion the materials handling division and this first national meeting, represented a long step forward in this field which is an essential part of all manufacturing. He described in considerable detail manufacturing conditions in Germany.

The German government, he said, is encouraging consolidations in industry by offering materially lower taxes to any two or three concerns which merge. The reason for this, is that the government recognizes that such mergers tend to reduce cost and increased efficiency and it is imperative that manufacturing efficiency throughout the country, be increased in order to enable the country to increase its exports and thus to pay reparations. The German government further encourages industry by paying for research work wherever a deserving company is unable to finance such work itself.

The first technical session of the meeting was devoted to some problems in foundry practice. F. D. Campbell, chief engineer, Eastern Steel Castings Co., Newark, N. J., described in considerable detail, the methods of handling materials at his plant. This plant produces electric steel castings of light sections and in a wide variety of forms and quantity and from this fact, Mr. Campbell concludes that nearly all so-called jobbing foundries in the country, can adopt methods of handling materials similar to those which have been put into effect at the Eastern Steel Castings Co. The design of the new system at this plant, has been that of straight line flow or sequential movement of material. He described a method whereby the lanes of travel on all the various products proceed through the various sections of the plant in more or less parallel lines and thus provide a flow that sets a pace and establishes a certain production rate, based on tonnage. Briefly, conditioned sand is carried overhead by trolley direct to the molding section. The molds are transported on roller conveyor systems. Pouring takes place while the molds are on this conveyor. The pouring system is entirely overhead and is by double monorail.

H. A. Hoffer, eastern sales manager, U. S. Cast Iron Pipe & Foundry Co., Philadelphia, presented a paper on the deLavaud process of casting pipe centrifugally. In the discussion following this paper, the importance of the materials handling problem was clearly developed. In answer to questions, Mr. Hoffer said 940 tons of material are moved by railroads for every 100 tons of pipe made. He then said, that approximately 1,250,000 tons of cast-iron pipe is produced in this country each year.

The use of unit containers for the shipment of less than carload lots of freight, was described in a paper presented by G. C. Woodruff, assistant freight traffic manager, New York Central railroad. Unit containers or

boxes, usually made of steel and designed to be placed on low side gondola cars, now are being successfully used by many railroads and the greatly added convenience and economy for both shipped and railroad, points to a rapid expansion of this method of handling goods. For general merchandise, a container about 7x8x9 feet is used. These containers are designed so that six will fit on a standard 9x47 foot gondola car. The containers are fitted with a tight door and are leakproof. The doors are locked and the method of carrying the containers on the car, makes it impossible to open them in transit. Each container handles a maximum load of 8500 pounds of miscellaneous freight. It is intended to be loaded and locked at the shipper's plant and be unlocked on receipt in the plant of the consignee. One of the chief advantages of this method, is that billing is by container rather than by items. Another advantage is that all classification structure is eliminated, there being one rate for the unit, whatever it may contain.

For bulk products, another type of unit container has been designed. For brick, for instance, a container has been designed to accommodate 3000 ordinary Hudson river bricks thrown in at random. This represents the ordinary truckload of bricks. The containers are of substantial steel construction with special devices for opening the doors, by dropping them, and for closing them after the bricks have been dumped. These containers permit the mechanical placement of bricks from the kiln to the car and the unloading off the car at destination in about one tenth of the time for such handling by previous methods.

Another advantage of the unit container idea, according to the speaker, will come by the establishment of container switching points. Containers for different destinations will go to these points, where they will be transferred by cranes from one car to another at much less expense than under the present system of switching cars.

Willard C. Brinton, president, Terminal Engineering Co., New York, presented a paper on materials handling on steamship piers at home and abroad and urged the American Society of Mechanical Engineers to take more interest in shipping problems. Engineers, he said, have devoted much time and study to the operation of ships at sea, but have overlooked the problems which are encountered in dock operations.

The handling of materials into and out of ships would be greatly facilitated if all ships were designed with suitable side ports. Mr. Brinton urged engineers to exert their influence in this direction. He pointed out that the CALIFORNIA recently put into service between the Atlantic and Pacific coasts, has side ports, 8x8 feet, which are adequate.

Marine engineers must co-operate with materials handling engineers, instead of endeavoring to accommodate the equipment to the old type of ship design. Mr. Brinton said he expected many ships to become obsolete in a few years, because of lack of facilities for handling of freight. Much discussion followed Mr. Brinton's paper. R. L. Lockwood of the division of simplified practice of the department of commerce, urged the standardization of lift trucks. This he said, will require co-operation of shippers, ship operating companies and railroads. Succeeding discussion brought out the point, that ships have been built larger during recent years, while piers for the most part, have stayed the same size. The cost of operating ships at sea gradually has decreased, while the cost of ships in port has increased.

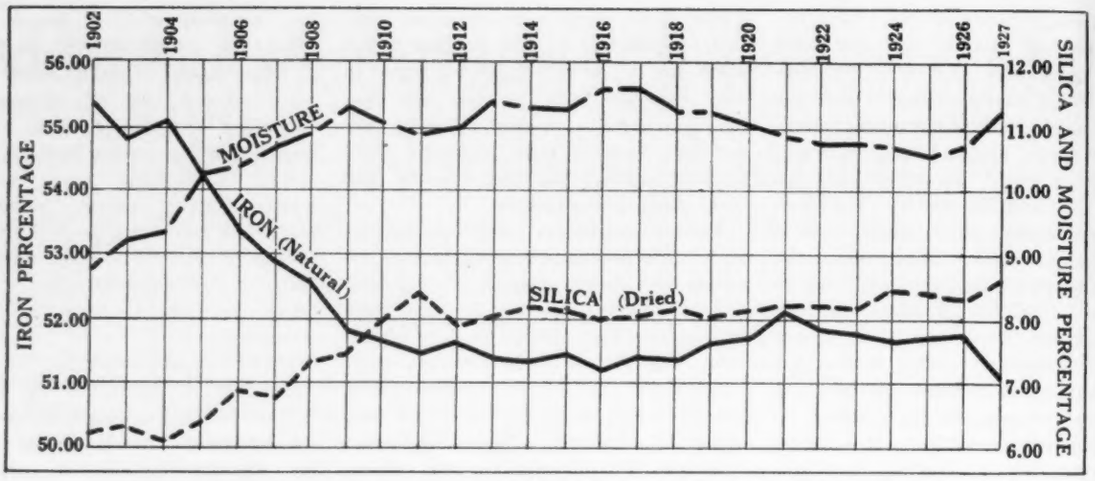
Other papers included, Pneumatic Handling of Materials, by Harry S. Parks, Holly Pneumatic Systems, Inc., Philadelphia, and Materials Handling by Harold V. Coes, vice president, Belden Mfg. Co., Chicago.

Forty-Car Garage from Scrap

UTILIZING structural steel that would otherwise have been scrapped, the Dallas Power & Light Co., Dallas, Tex., has erected a 40-car welded garage for the protection of employes' cars. A single portable welding equipment, built by the General Electric Co., Schenectady, N. Y., was all that was necessary to do the work. The garage, as shown in the illustration is made of a steel angle-iron framework, covered with corrugated galvanized steel. There are two units, each 16 by 140 feet, divided into ten spans each 14 feet wide, and each unit being capable of covering 20 cars. The units face each other with a 22-foot driveway between.

The steel used in the framework of the garage was salvaged from the framework of an outdoor switching structure which became obsolete with the addition of generating equipment to the power plant. The varying lengths of the steel members removed from this structure, together with the numerous holes already punched for the switching structure would have made it necessary to splice or scrap the greater part of the steel if a type of construction other than welding had been used. As the company possessed the portable arc welder, it was decided to fabricate the structure by welding.

All welds were of the strap and butt type. The columns are fastened to the wood foundation by means of lag screws through angle clips welded to the base of the columns, and these are the only bolts in the entire structure. The roof and walls are made of 29-gage corrugated galvanized steel roofing fastened on with 6-inch lead head roofing nails.



Long-range trends shown by average analyses of Lake Superior iron ore

Lake Ore Shows Slight Drop in Iron; Gain in Silica and Moisture

A SLIGHT increase in the percentage of silica and moisture, and a small decrease in the amount of iron natural is shown by the average analyses of all iron ore shipped from the Lake Superior district last year. The gain in silica was only 0.25 per cent, but the average amount of silica was 8.60 per cent, the highest ever shown by the records which are maintained by the Lake Superior Iron Ore association.

The gain in moisture in 1927 over the average of 1926 was 0.53 per cent, and the volume of moisture last year was 11.31 per cent, the highest point since 1919. The average amount of iron natural in the ore last year was 51.19 per cent, compared with 51.75 per cent in 1926. The 1927 average of iron natural was therefore the lowest ever recorded.

It is important to bear in mind in making these comparisons that they represent the general averages of all the ore; that the percentage of iron natural, moisture and silica has not varied more than 1 per cent since 1909. A glance at the above chart will show that producers have been fairly successful in checking the precipitate descent of iron natural,

(*Concluded on Page* 1148)

Average Analysis of Ore Shows Uniformity

BESSEMER, ALL RANGES

	Iron, natural	Phos.	Silica	Mang.	Moisture	% of total
1927	54.67	0.039	7.85	0.38	9.62	23.6
1926	55.16	0.040	7.63	0.37	9.28	25.4
1925	54.80	0.040	8.17	0.36	8.99	27.2
1924	54.80	0.040	8.10	0.34	9.33	27.7
1923	54.98	0.039	7.74	0.34	9.25	29.9
1922	54.57	0.040	7.90	0.35	9.68	29.5
1921	54.36	0.040	7.87	0.36	9.69	32.4
1920	54.18	0.042	7.55	0.46	10.10	31.8
1919	53.96	0.043	7.64	0.45	10.40	32.2
1918	53.84	0.043	7.62	0.46	10.23	31.2
1917	53.48	0.043	7.57	0.48	10.64	32.8

LOW PHOSPHORUS, NONBESSEMER, ALL RANGES

1927	51.03	0.076	8.10	0.68	12.34	61.4
1926	51.39	0.077	7.98	0.67	11.68	61.2
1925	51.46	0.075	7.82	0.71	11.57	58.3
1924	51.25	0.075	7.95	0.68	11.75	57.8
1923	51.09	0.077	7.93	0.70	11.85	57.7
1922	51.35	0.077	7.95	0.69	11.67	57.4
1921	51.23	0.075	8.01	0.73	11.95	58.2
1920	51.18	0.079	7.84	0.69	12.13	52.9
1919	50.89	0.080	7.88	0.72	12.29	52.9
1918	50.77	0.082	7.79	0.76	12.32	54.7
1917	50.90	0.082	7.58	0.73	12.62	53.9

HIGH PHOSPHORUS, NONBESSEMER, ALL RANGES

1927	50.86	0.443	7.32	0.38	9.28	8.3
1926	51.11	0.439	7.41	0.35	9.09	7.5
1925	50.85	0.414	7.87	0.35	8.88	8.3
1924	50.86	0.402	7.88	0.40	9.43	8.9
1923	50.86	0.416	7.69	0.33	8.98	6.4
1922	50.94	0.439	7.59	0.42	8.99	7.8
1921	51.07	0.427	7.26	0.44	9.07	6.6
1920	50.91	0.414	7.68	0.40	9.30	9.4
1919	50.72	0.428	7.61	0.39	9.49	9.9
1918	50.97	0.435	7.35	0.36	9.03	8.4
1917	50.83	0.403	7.12	0.47	9.71	8.7

SILICIOUS, ALL RANGES

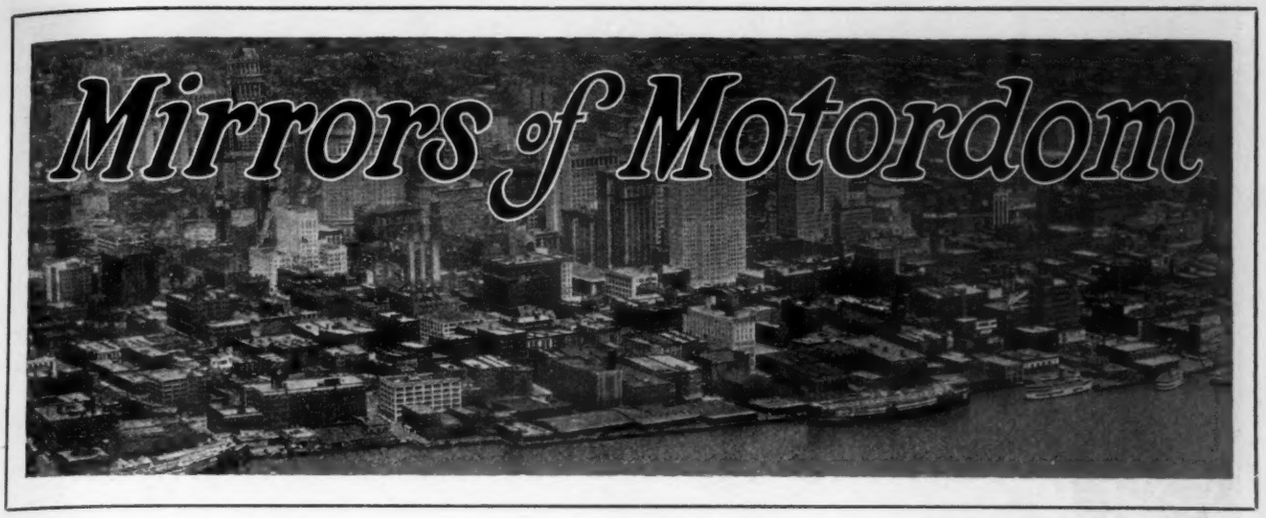
	Iron, natural	Phos.	Silica	Mang.	Moisture	% of total
1927	37.29	0.058	38.35	0.21	4.41	2.1
1926	39.79	0.068	33.58	0.21	5.20	2.0
1925	39.91	0.055	32.37	0.29	5.99	2.1
1924	41.34	0.060	29.80	0.34	6.45	2.3
1923	42.17	0.055	29.30	0.34	6.50	1.9
1922	41.39	0.052	30.44	0.27	6.23	1.6
1921	45.50	0.052	25.20	0.27	7.31	1.8
1920	41.43	0.054	30.19	0.37	6.34	1.8
1919	41.11	0.049	30.85	0.46	6.60	1.2
1918	41.76	0.077	32.95	0.23	6.59	1.5
1917	41.61	0.060	29.83	0.32	7.25	2.0

MANGANIFEROUS, ALL RANGES

1927	42.81	0.236	8.04	6.40	12.93	4.6
1926	42.64	0.245	7.61	6.83	12.56	3.9
1925	43.46	0.221	7.17	6.57	12.69	4.1
1924	43.74	0.249	6.84	7.00	11.61	3.3
1923	44.03	0.266	6.75	6.36	11.23	4.1
1922	44.96	0.204	6.71	5.88	11.66	3.7
1921	46.41	0.159	7.59	4.71	13.02	1.0
1920	45.33	0.201	7.64	5.23	11.68	4.1
1919	46.43	0.142	7.32	4.35	12.49	3.7
1918	42.91	0.180	9.53	6.61	11.85	4.2
1917	44.84	0.176	9.22	6.18	10.94	2.6

ALL GRADES, ALL RANGES

1927	51.19	0.105	8.60	0.84	11.31
1926	51.75	0.101	8.35	0.80	10.78
1925	51.74	0.099	8.42	0.82	10.58
1924	51.72	0.100	8.45	0.76	10.75
1923	51.79	0.095	8.22	0.79	10.76
1922	51.87	0.099	8.23	0.76	10.78
1921	52.07	0.087	8.23	0.62	10.95
1920	51.69	0.103	8.13	0.77	11.09
1919	51.57	0.105	8.04	0.73	11.34
1918	51.29	0.104	8.12	0.87	11.29
1917	51.40	0.099	8.02	0.76	11.57



Ford, Farming Out Parts, Snaps Up to 3500 Daily

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Auto Production Checkered but High Total Holds

Detroit, May 1

FOR eleven months the Ford Motor Co. has been a statistical liability to the automotive industry but now, as if to hallow the approaching first anniversary of the passing of Model T, it is rapidly becoming a major asset. With a celerity not believed possible thirty days ago production has shot up to practically 3500 daily. Parts orders have been distributed with a lavish hand in the past fortnight, the shortage of accessories such as shock absorbers is being remedied, Ford steel is again being shipped out to parts contractors and with the night shift restored at Fordson for the first time in over a year Ford employment now tops 100,000.

Crankshafts are being shipped from Fordson for machining. A large order for hub caps and brake assemblies has just been placed. Body makers have received releases on more body styles. Some of the less desirable parts business is now being placed. Within the Fordson plant itself added equipment is being installed in 'key" departments and the cessation of tractor production for the time being affords more space. Ford production is now exceeded only by that of Chevrolet, reputed to be above 4000 daily, and the race is on.

* * *

AS MAY wears on it will be to Ford that the industry will look increasingly for support of its production total. At the moment, output in the aggregate holds to the high levels of the past sixty days, but the variations among individual producers are more pronounced and usually this forecasts an easier general situation. Through May it is believed the increase by Ford will neutralize the defections among other makers.

Buick will slow up appreciably this month, as its run of 1928 models ends. Chevrolet is easing off, if a reduction of one-third in its scrap offerings for May is any criterion. Dodge Bros. have curtailed sharply, laying off the night force. Some holdups have been received from Hudson-Essex. On the other hand, Chrysler is at a little faster gait, Graham-Paige and Reo still feel the impetus of new models, Oakland-Pontiac are going strong, Oldsmobile is setting records and the high-priced cars show little deviation.

For most steelmakers shipments to the Detroit district in April have approximated those of March and, barring the holdups which come overnight, May will be on practically the same basis. It looks today as if the mills will not feel any letdown until June. But as Ford goes up and some other makers go down, those steelmakers who have been on rather lean rations for many months on account of the Ford situation will come into their own.

* * *

SPECIFICATIONS for steel for the new 1929 Buicks indicate that both current models will be continued with many departures in bodies and a marked increase in power, the larger model to top 100 horsepower. It is understood production will begin June 15. Rumors of a Buick eight are now given little credence by the trade.

The new De Soto Six, for which Chrysler is setting up a separate production and sales organization, is expected to provide competition in the Essex class and to mark the entry of Chrysler into the truck field. Some believe that the new Whippet Six, with a 7-bearing crankshaft and aluminum alloy pistons, has taken the thunder out of sixes priced up to $1000.

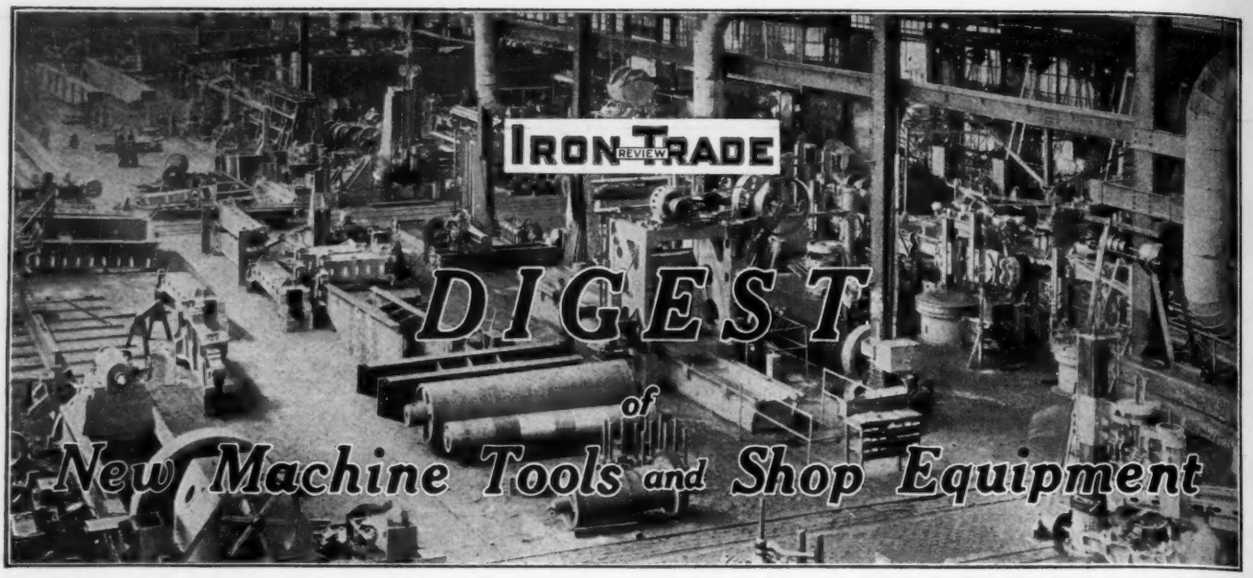
* * *

IT IS good news for the steel producers that wire wheels are now the hallmark of automotive smartness. Perhaps it is a coincidence that the leading wire wheel interest has corralled or established the more important patents, has licensed some makers and is reported planning action against a maker of low-priced cars who welds his spokes. A six-cylinder wire-wheeled Chevrolet is reported imminent.

* * *

ONLY through the balance sheet filed annually in Massachusetts does the public get an insight into the vast and intricate financial operations of the Ford Motor Co. As of Dec. 31, 1927, the value of machinery and equipment at all plants is set down as $144,821,593, compared with $137,615,082 the year before. Inventory as of last Dec. 31 totaled $72,177,674, a marked reduction from the $88,074,988 of Dec. 31, 1926.

Franklin Iron Works Inc., Mt. Vernon, Wash., has changed its name to Franklin Steel & Machinery Co.



Tool Buyers Pressing for Delivery

TO USE the words of one of the country's leading machine tool authorities, "this spring's business is decidedly satisfactory." Sales of equipment during the first quarter of the year set a good pace and it appears that April carried on with little or no let-up. The automobile industry, in particular, was responsible for the placing of much equipment during the last 30 days, as shops are being tooled up for new and improved models. Likewise, automotive parts manufacturers have been heavy buyers, since the Ford Motor Co. has contracted with outside interests for the manufacture of shock absorbers, water pumps and other accessories.

It is to be noted that by far the greatest proportion of sales is for single-purpose, high-production tools rather than for standard types. These tools must be equipped with special heads, chucks, jigs and fixtures, and other parts, and is having the effect of slowing up deliveries. Buyers are demanding prompt delivery and are pulling wires to save even a day or so. It is said in some quarters that not since the war has the demand for delivery been so insistent. Conditions are not parallel, however, for whereas during the war period purchasers seemed interested only in deliveries, today they seek highest quality machines at the lowest prices and the earliest deliveries.

Nevertheless, production is not likely to be much affected by the lack of equipment, according to E. F. DuBrul, general manager, National Machine Tool Builders association, who summarized in his monthly review as follows:

"The state of equipment demand indicates a very healthy realization that there is some shortage of modern, up-to-date equipment in the plants of this

(*Concluded on Page* 1147)

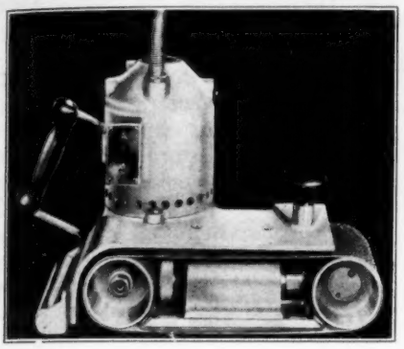
Iron Trade Review's Calendar of New Equipment

No.	Item	Builder	Comment	Date Described
81.	Cement gun	S. Obermayer Co.	Air operated; for refractories	March 29
82.	Universal iron worker	Buffalo Forge Co.	Larger size punch, shear and bar cutter	March 29
83.	Riveting machine	Hanna Engineering Works	Pneumatic; for chassis frames	March 29
84.	Riveting machine	Hanna Engineering Works	Pneumatic; for tractor wheels	March 29
85.	Swing-frame grinder	Norton Co.	For high-speed snagging work	March 29
86.	Electric arc welder	General Electric Co.	Combined with gasoline tractor	April 5
87.	Electric arc welder	Westinghouse Electric & Mfg. Co.	Motor-driven; mounted on wheels	April 5
88.	Electric arc welder	Lincoln Electric Co.	Gasoline engine driven	April 5
89.	Diesel engine	Fairbanks, Morse & Co.	For drilling oil wells; portable	April 5
90.	Air filter	National Air Filter Co.	Unit type; uses new medium	April 5
91.	Grease cup	Hunter Pressed Steel Co.	Improved design; cadmium finish	April 5
92.	Gas producer fuel feed	Wellman-Seaver-Morgan Co.	Double-bell type; adjustable	April 5
93.	Across-the-line motor starter	Cutler-Hammer Mfg. Co.	Alternating current; gives full protection	April 12
94.	Magnetic switch	General Electric Co.	Places squirrel-cage motors across line	April 12
95.	Brinell testing machine	Brown Bayley's Steel Works Ltd.	Portable; operates on new principle	April 12
96.	Electric solenoid brakes	General Electric Co.	Models for alternating and direct-current	April 12
97.	Manhole cover	United Filters Corp.	Incorporates locking device	April 12
98.	Automatic rod magazine	Brown & Sharpe Mfg. Co.	Feeding device for automatic screw machines	April 19
99.	Portable conveyor	Link-Belt Co.	Light-weight; motor-driven	April 19
100.	Combination bench machine	Niagara Machine & Tool Works	Turns, wires and burrs sheet metal	April 19
101.	Portable electric tools	Hisey-Wolf Machine Co.	Two drills and bench grinder	April 19
102.	Packing cutter	Chickasaw Machine & Foundry Co.	Cuts fibrous packing to exact fit	April 19
103.	Gear cutting machine	Brown & Sharpe Mfg. Co.	Automatic; redesigned; more productive	April 26
104.	Board drop hammer rolls	Chambersburg Engineering Co.	Roller bearing; increases board life	April 26
105.	Automatic drilling machine	Hammond Mfg. Co.	Six-spindle; drills cap screw heads	April 26
106.	Hand belt surfacing machine	Porter-Cable Machine Co.	Larger size; for wood or metal	May 3
107.	Turret lathe cross slide	Warner & Swasey Co.	Compound type for taper work	May 3
108.	Multiple molding machine	Tabor Mfg. Co.	For standard split pattern practice	May 3
109.	Storage battery lift truck	Lakewood Engineering Co.	For handling cable reels	May 3
110.	Jig boring machine	Pratt & Whitney Co.	Small size for precision work	May 3
111.	Pneumatic press	Hanna Engineering Works	High-speed, vertical	May 3
112.	Hand nibbling machine	National Machine Tool Co.	Cut sheets metal in irregular shapes	May 3
113.	Grinding machine	Kling Bros. Engineering Works	High-speed, double-end heavy-duty	May 3
114.	Motor starters	General Electric Co.	Direct-current, general purpose use	May 3

Larger Sander Finishes Wood or Metal

No. 106

Porter-Cable Machine Co., Syracuse, N. Y., is introducing a heavy-duty, hand-belt surfacing machine for wood or metal. This machine, which is shown in the accompanying illustration, was developed because the smaller model was not a production machine and because the trade demanded a heavy-duty type. It is equipped with a new type, compound-wound air-cooled motor that shows little temperature rise after continuous use. The 1 horsepower is abundant to drive the 4-inch belt at the rapid rate of 2000 feet per minute. The motor is of the universal type and



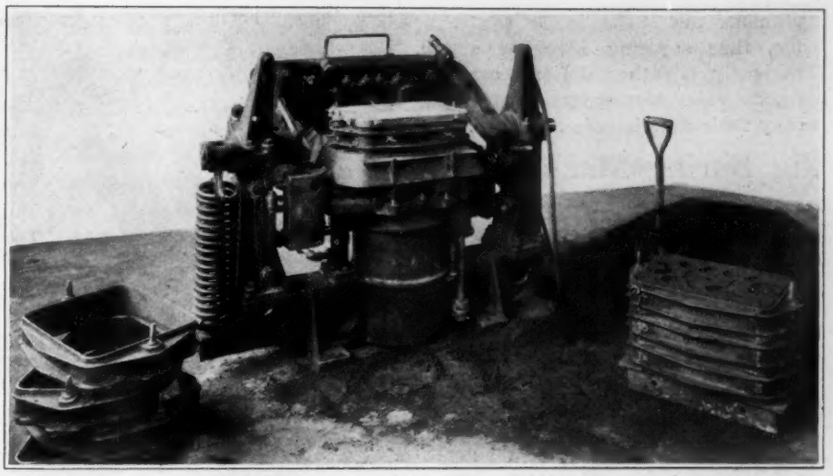
No. 106—Hand belt surfacing machine

may be operated on direct current, or alternating current from 25 to 60 cycles. Power is transmitted to the rear pulley by a worm and gear which are totally enclosed. Belts can be changed in a fraction of a minute and are furnished for cutting wood or metal. They come all made up ready to be slipped over the pulleys. Tension is automatically maintained correct. Total weight is 22 pounds.

Offering Compound Cross Slide for Lathes

No. 107

Warner & Swasey Co., 5701 Carnegie avenue, Cleveland, is announcing a new compound cross slide which can be furnished for two sizes of turret lathes which it manufactures. It can be used for turning bevel gear blanks and similar work having steep tapers, as well as general work without loss of rigidity. The full stroke and swing capacity of the lathe is not affected by this attachment. The slide is of massive construction and may be used as a straight turning and facing slide as well as a compound slide. Angles can be faced or turned up to the full swing capacity of the lathe and the swivel plate can be rotated around 360 degrees, the full swing stroke of the slide being 8 inches. Both the cross and compound slide have power feed, the construction being such that it is impossible to engage both at the same time. All graduated dials are large.



No. 108—Multiple molding machine using split pattern practice

Molding Machine Insures Good Head Alignment

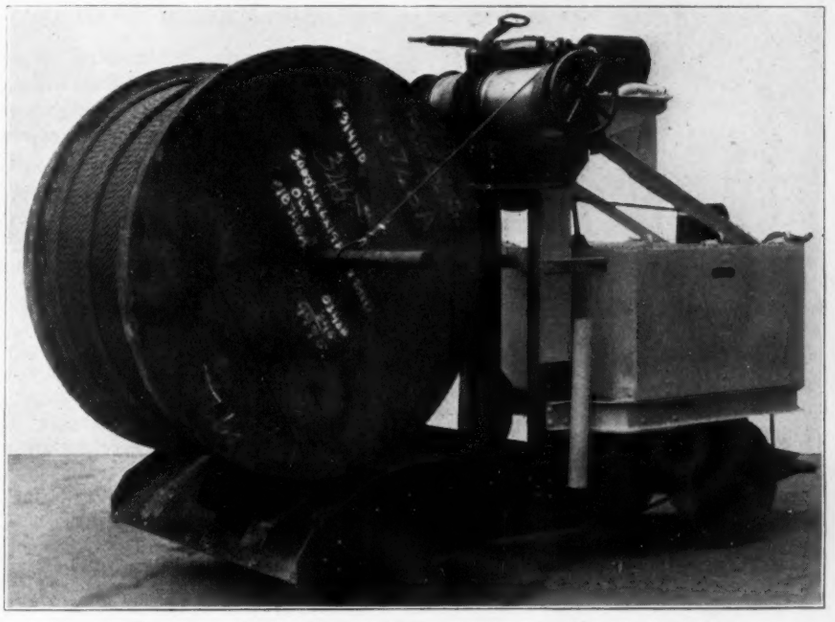
No. 108

Tabor Mfg. Co., 6225 Tacony street, Philadelphia, has placed on the market three new pieces of foundry equipment, including a core machine, a multiple molding machine and a large 30-inch jar strip squeeze machine having several model features. The multiple machine, shown in the accompanying illustration, follows that company's standard split pattern machine practice as far as possible. The principal novelty is in the type of swinging yoke used and the method of insuring alignment between the upper and lower head while squeezing. The head is operated by power, thus relieving the operator of this tedious operation; the guides are so arranged that the two heads are guided in all directions and are readily adjusted. The drawing speed and vibration operation are entirely automatic.

New Lift Truck Handles Heavy Cable Reels

No. 109

Lakewood Engineering Co., Berea road and West 117th street, Cleveland, has designed a new storage battery lift truck especially for handling reels of wire, cable, etc. This truck, which is shown in the accompanying illustration, has a capacity of 6000 pounds and will handle reels up to 60 inches diameter and 42 inches wide. The winches slide upward on the



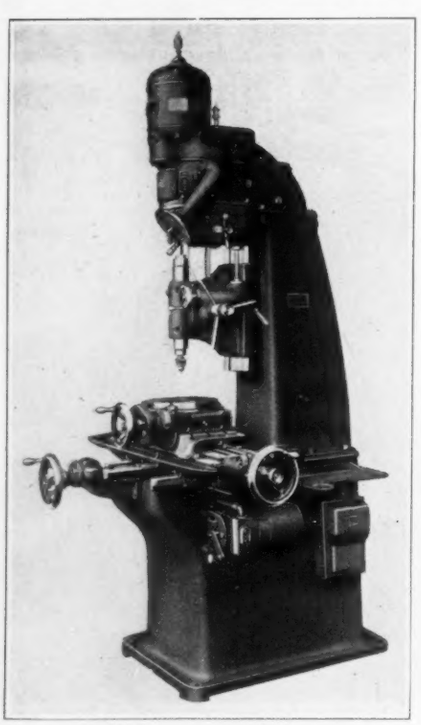
No. 109—Storage battery lift truck for handling cable reels

trunnions and wind in at the same time, thus securing a double action. Previously a rather difficult handling problem, the transportation of these heavy reels now is safe and easy.

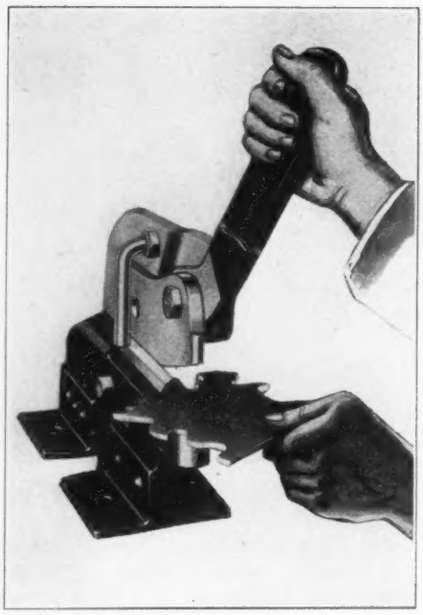
Jig Boring Machine Has Smaller Capacity

No. 110

Pratt & Whitney Co., Hartford, Conn., recently has introduced a small jig borer intended primarily for small jig and fixture work but well adapted for all kinds of small precision boring and making accurate models. The machine, which is shown in the illustration, is of the same principle of the company's larger machine and is built in two sizes identical except that one has a 4½-inch greater distance between the table surface and the spindle nose. A vertical variable-speed motor is built into the machine at the top of the column and arranged to drive the spindle either by direct connection or through sliding back gears. Both the spindle head and spindle quill are balanced by counterweights inside the column. Graduations on the face of the quill permit boring to a definite depth. Four motor speeds and the back gears give a total of eight spindle speeds ranging from 132 to 1800 revolutions per minute, this range making the machine equally adaptable for drilling, reaming or boring. The working table surface is 9¾ x 18 inches, with longitudinal and transverse travels of 18 and 10 inches respectively. One machine has minimum and maximum distances from table top to spindle end of 1¾ inches and 10¾ inches; the other 6¼ inches and 15¾ inches. In both the spindle head travel on the column is 5 inches and the spindle quill travel 4 inches. Distance from the spindle center to column face is 9¼ inches. For use with these machines, the manufacturer has designed a rotary table which can be clamped to the regular table and which provides extremely accurate circular indexing. One revolution of the indexing handwheel turns the table through 9 degrees. A slow-motion handwheel provides settings accurate to 5 seconds.



No. 110—Small jig boring machine



No. 111—High-speed pneumatic press

Builds Pneumatic Press for Varied Work

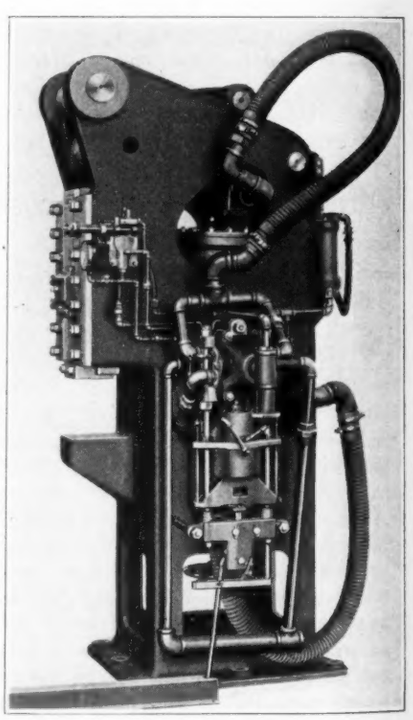
No. 111

Hanna Engineering Works, 1765 Elston avenue, Chicago, is announcing a high-speed pneumatic press for coining, squeezing, forming, upsetting, shallow drawing and punching. The machine is shown in the accompanying illustration. An air cylinder piston unit actuates the ram through a toggle and lever mechanism such as the company uses on its riveters. The toggles close the gap between dies with little air consumption while the lever exerts a uniform tonnage on the dies through a considerable portion of ram stroke regardless of variation in work thickness. The stroke of die or ram may be set for a wide range of lengths by adjusting a handwheel at the base of the press. The tonnage exerted between the dies may be set for anything between 20 per cent and full rating by adjusting a pilot valve. The press shown exerts 150 tons between dies at 100 pounds air pressure, but is available in other styles and ratings. Among features making possible the high speed of 30 to 40 cycles per minute are shock absorbing cushions at both extremes of piston stroke; air counter-balance; automatic reverse from down stroke to up stroke; and foot trip pedal for starting each stroke cycle. Only one die stroke results from each depression of foot pedal even though it be held down. Die and stroke adjustment reduces air consumption of the press to a minimum.

Hand Nibbler Cuts Sheet Metal with Ease

No. 112

National Machine Tool Co., 1536 Clark street, Racine, Wis., has perfected a hand nibbling machine for use in pattern shops and toolrooms for making templets and gages. This tool, shown in the accompanying illustration, cuts up to ⅛-inch sheet metal into any design without the necessity for much filing. A few quick short down strokes do the work, with the concave cutting knife shearing along any curved line. The semicircular punch cuts out the corners which are hard to get at. The shear blades are of tool steel and are easily removed for sharpening and are 4½ inches long. The rod cutter has a capacity for 5/16-inch round stock. All-steel construction is featured with no special mounting necessary; it may be bolted to the bench or clamped in a vise.



No. 112—Hand nibbling machine

Performs Heavy Grinding at High Speed

No. 113

Kling Bros. Engineering Works, 1300 North Kostner avenue, Chicago, is announcing a new high-speed double-end heavy-duty grinder designed to use elastic bond wheels and to grind gray iron, malleable and steel castings; iron and steel forgings; and other materials. As shown in the accompanying illustration, the grinder is massive. The grinding wheels are 24 inches diameter, 3 inches wide, have a 12-inch bore and run at a constant peripheral speed of 8500 feet per minute. Power is derived from a 15-horsepower ball-bearing motor which runs at 1800 revolutions per minute. The high-carbon steel wheel shaft is 4 15/16 inches diameter and supported by heavy-duty ball bearings located close to the wheels to prevent overhang. As the chucks upon which the 24-inch wheels are mounted require a 12-inch bore, they allow for grinding to a 14-inch diameter. Heavy steel guards, equipped with adjustable spark protectors, are mounted over each wheel. The steel rests are mounted on the guards to allow the work to be handled close to the grinding surface.

Introduces New Line of Motor Starters

No. 114

General Electric Co., Schenectady, N. Y., announces a complete new line of direct-current motor starters for general purpose applications and providing definite acceleration for constant and adjustable speed motors. One of the principal advantages of the new design is the fact that, despite a reduction in size, the number of accelerating points has been increased. An improved appearance is secured by the drawn-steel enclosing cases. On these starters provided with dynamic braking, a small relay is used to prevent the solenoid from being re-energized until the motor has come to rest. Thermal overload protection is provided.

Will Heat Billets with Blast Furnace Gas

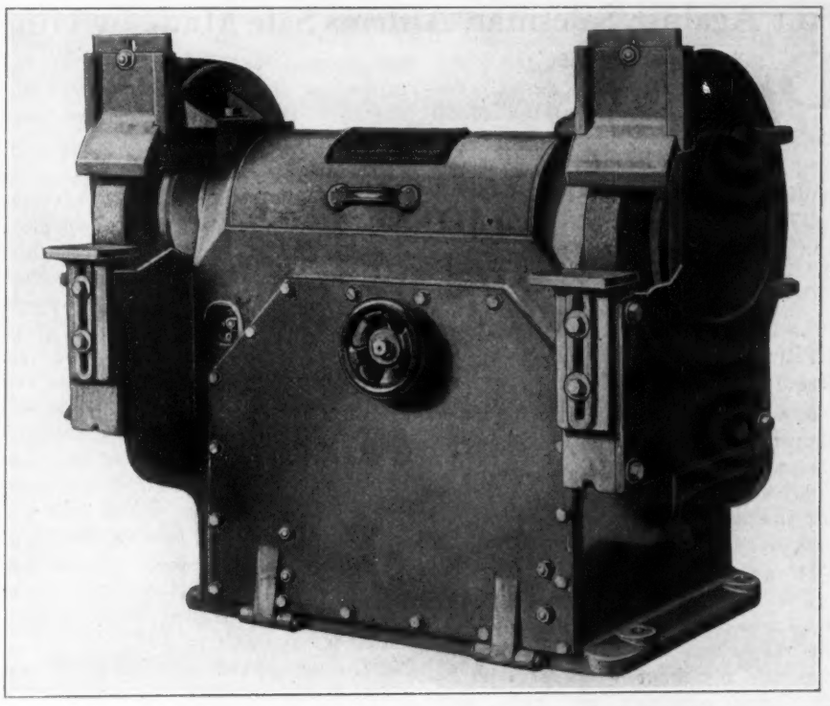
Paris, April 20.—The Societe Metallurgique de Knutange has authorized the construction of a furnace fired by blast furnace gas for reheating billets at the rate of 20 tons an hour. This furnace, which will be constructed by Societe des Fours Stein, will have a flat roof and will be built on the principle of double regeneration of air and gas.

The net profit of Societe Metallurgique de l'Ariege for the year ending Sept. 30, 1927, was 1,501,566 francs ($59,200). The sum of 1,400,000 francs ($55,000) was put to the reserve fund and the balance was carried forward. Stockholders of the company decided to increase the capital from 14,000,000 francs ($550,000) to 30,000,000 francs ($1,180,000). The first increase of 11,000,000 francs ($432,000) will take place in the near future.

Largest Arc Welded Gas Holder Completed

What is claimed to be the largest all-electric, arc welded, low-pressure gas holder ever built has just been completed for the Albion Gas Light Co. at Albion, Mich. The holder with all lifts elevated to their maximum height stands 113 feet 7 inches above the foundation; it has a diameter of 74 feet and weighs 516,385 pounds, not including the welding rod that was used. The holder has a capacity of 300,000 cubic feet of gas at a water pressure of 12 inches. The construction and design are both the work of the Western Gas Construction Co., Ft. Wayne, Ind.

A 15,000 cubic foot single-lift holder of all-arc welded steel construction was built by the same company in 1924 for the Missouri Gas & Electric Co., Lexington, Mo., and with this one exception, the Albion holder is the only and largest low pressure reservoir built entirely by arc welding. Four tons of welding rods were used in the 21,414 lineal feet of welding. Four welding machines built by the Lincoln Electric Co., Cleveland, performed the work.



No. 113—High-speed double-end heavy-duty grinding machine

Tool Buyers Press for Early Delivery

(*Concluded from Page* 1144)

country. But as the equipment manufacturing plants are amply able to take care of all the orders they are getting, the equipment factor is not limiting production now and is not likely to do so for as long ahead as business needs to forecast."

Speaking of the machine tool business during the first quarter of the year, Mr. DuBrul said:

"Seasonal spring activity is reflected in many business statistics of various sorts, which show a marked up-turn. The industries that are most prominent in their activities are automobiles, steel and building. Taking all things into consideration, this spring's business is decidedly satisfactory.

"The tentative calculation of our own index of orders indicates that March business was slightly less than February business. We should consider it a very satisfactory level after weighing all the factors affecting the machine tool business. We need not be surprised to find orders going off somewhat for the rest of the spring months until business men generally get a rather fair estimate of the political situation. This would be the expected thing in view of the behavior of business in the first half of presidential years, which ought not to make any difference, but which do make a difference in business psychology."

The Court Rules:

A series of decisions in actual civil and criminal cases which are typical of those frequently encountered by small shops in metalworking industries.

By M. L. Hayward

Suit Against Salesman Affirms Sale Made by Him

DO YOU want to take the 5 per cent discount for cash?" the salesman of the Jones Metal Co. queried.

"I certainly do," the metal dealer replied, reaching for his checkbook.

"You'd better make the check payable to me, personally, to save time," the salesman suggested.

"Not on your life," the dealer said. "The last time I did business that way I had to pay for the goods twice before I got them."

The salesman "flashed" a paper signed by the president of the Jones company.

"There's a written statement from the company authorizing me to collect cash on any orders that I take," the salesman declared.

The merchant read over the document and made the check payable to the salesman. The goods did not arrive, the merchant wrote a letter to the Jones company, and that company repudiated the transaction on the ground that the salesman had no authority to collect money and that the document which he showed to the merchant had been obtained from the company by the agent's fraud.

Later the salesman from another Chicago house called on the dealer, and the latter made some inquiries in reference to the Jones company, and the salesman who had taken the merchant's order.

"Oh, yes, they're in a big mix-up over that," the second salesman explained. "Before I left Chicago the company had sued the salesman to make him pay over $1000 that he'd collected from some buyer down here, and the case was about ready for trial when I left."

"I'm the fellow who bought the goods," the merchant admitted.

"And I suppose the Jones company has refused to ship the goods on the ground of the salesman's lack of authority," the second salesman suggested.

"That's the idea."

"Well, I'm no lawyer, but it seems to me that when the Jones company sues their salesman to make him pay over the money he collected from you, it can't refuse to ship the goods that you paid the money for. In other words, by going after the salesman, it admits his authority as far as you are concerned." And the salesman was right.

"By bringing the suit for the purchase price, knowing all these facts, the principal must be held to have affirmed the sale and waived his right to maintain the present proceedings based upon the disaffirmance of the sale," says the United States circuit court of appeals.

"The unreserved assertion of ownership of the proceeds amounted to a recognition of the validity of the sale," says another court in laying down the same rule.

Lake Ore Drops in Iron

(*Concluded from Page* 1142)

and sharp rise in moisture and silica, as shown by the trend lines prior to that year. The remarkable feature of the trend in recent years is not the variation in contents of the ore, but the uniformly high standard.

Average analyses of all bessemer ore shows the proportion of iron natural increased from 55.16 per cent in 1926 to 54.67 per cent in 1927. Bessemer ore made up 23.6 per cent of all shipments last year, a decline of 1.8 per cent from the year preceding.

Low phosphorus nonbessemer ore constituted 61.4 per cent of the total in 1927, practically the same as in 1926. In this grade the proportion of iron natural declined from 51.39 per cent to 51.03 per cent; silica increased from 7.98 to 8.10 per cent and moisture rose from 11.68 to 12.34 per cent.

The Mesabi range shipped 72.1 per cent of all the low phosphorus nonbessemer ore. This grade from the Mesabi range showed a decrease from 50.94 per cent to 50.40 per cent in iron natural. Silica increased from 7.81 to 8.03 per cent, moisture increased 12.29 to 13.19 per cent; phosphorus remained unchanged at 0.073 per cent.

High phosphorus ore, comprising 8.3 per cent of all the ore shipped from the Lake Superior district, showed an average of 50.86 per cent iron natural last year, against 51.11 per cent in 1926. The percentage of silica decreased slightly, while moisture increased.

In manganiferous ore, iron natural increased from 42.64 per cent to 42.81 per cent; silica increased from 7.61 to 8.04 per cent, and moisture from 12.56 to 12.93 per cent.

Silicious ore shows a decrease from 39.79 per cent iron natural in 1926 to 37.29 per cent in 1927. Silica advanced from 33.58 to 38.35 per cent, while moisture decreased from 5.20 to 4.41 per cent.

Studies Endurance Limits of Rail Steel

A series of tests on the properties of rail steel has been carried out with particular reference to their resistance to repeated stress by the bureau of standards. Results are presented in technological paper No. 363. Eleven heats of steel were studied, some of which were cast in standard molds and others in sink-head molds. The endurance limit of steel from 100-pound rails was found to vary from a minimum of about 41,000 pounds a square inch to a maximum of about 59,000 pounds a square inch and the endurance ratio from 37 to 44 per cent. In general, rails rolled from sink-head ingots have higher endurance limits. It was found that the endurance limit of rail steel is decreased by overstressing and may be increased by understressing. A method is suggested whereby it may be possible to determine if rail steels in service are subjected to stresses greater or less than their endurance limits.

Three-tenths of the tin plate entering the world's markets at present is of American manufacture.

Editorials

Convention Is Aid To Foundrymen

FOUNDRYMEN who give careful attention to the information in this issue pertaining to the approaching convention and exhibition of the American Foundrymen's association at Philadelphia cannot fail to be impressed with the opportunities offered by this great foundry event. Something worth while has been provided for every individual in the castings industry—whether he be owner, executive, metallurgist, salesman, clerk or shopman. Likewise, the interests of the various branches of the industry have been recognized and provided for so that problems of gray iron, steel, malleable and nonferrous all will be discussed.

It is especially gratifying that the appeal of the A. F. A. program should be so broad as to include all foundrymen, because foundry problems this year are rather complex and difficult of ready solution. The industry is going through a period of change, and the adjustment from the old to the new is painful. The new conceptions of foundry management involve certain methods decidedly different from established routine, new equipment and a more intimate knowledge of general management problems.

The annual convention affords the best opportunity to consider these constantly changing problems of the castings industry. Moreover, this year the convention carries the added attraction of the exhibition of foundry equipment and supplies, 18 months having elapsed since the Detroit foundry show in 1926.

In view of what lies in store for foundrymen during the week of May 14, no individual whose interests are identified with the castings industry can afford to miss the Philadelphia meeting.

Carbuilders Recovering Markets

VERTICAL expansion by the railroads, characteristic in the past few years in American industry, has been having a serious effect upon the builders of freight cars. Increased efficiency in operation, the wider use of steel in construction, cutting down frequency of repairs, and more expeditious handling of freight have reduced sharply the number of freight cars necessary for replacement and expansion. This is evidenced by the diminishing totals of freight car orders. In the first quarter of 1928 only 16,650 freight cars were ordered against 25,625 in the same period of 1927 and 30,620 in 1926.

The most encouraging development in the recent months, however, has been the marked tendency of railroads to place their construction and repair business with companies formed especially for that purpose. The carbuilder, who in previous years has been competing with the railroads own shops, is beginning to be considered by the carriers as an essential adjunct to their industry. If the trend of the first quarter be continued, when railroads ordered but 400 cars from their own shops, or 2.5 per cent of the total placed, as compared with 4085, or 16 per cent, in the first quarter of 1927, the carbuilding industry can re-establish its financial basis.

Belgian Efficiency a War Gain

DESTINY, which shapes our ends, according to the old saw, has seemingly turned deepest misfortune into unexpected advantage for the steel industry in Belgium. The battleground in the World war, Belgium suffered devastation to a greater degree than other warring countries and its steel plants, almost without exception, not only were destroyed but their equipment also was dismantled and carried away.

While this was intended by the invaders to cripple future competition by Belgian steelmakers, it has had the opposite effect. So little was left that Belgium was forced to build anew, almost from the ground. As a result, instead of relying on blast furnaces and steel plants of old design, less efficient than modern equipment, Belgium now has the most modern types. In this it excels Germany, France and England.

The reader of European steel history for the past year or more can see the result. Belgium is underselling the rest of Europe and making a profit. It is the long-range effect of the complete destruction of its plants and the necessity for building new, thus obtaining the most efficient method of production. Had plants been left standing Belgium probably would be making shift to compete in world markets with old equipment.

More Ore Must Be Beneficiated

FURTHER increase in beneficiation of Lake Superior iron ore is foreshadowed by the average analyses of ore as shipped in 1927. Thirty-seven per cent of all the ore last year was beneficiated. Despite this, the average

amount of moisture and silica increased sharply, while the average of the iron natural decreased. The percentage of moisture was the highest since 1919; the proportion of silica was the largest on record, and that of iron natural the lowest known.

Moisture in the ore in 1927 amounted to 11.31 per cent, by weight. This in a total shipment of 52,000,000 tons of ore means the moisture weighed 5,881,200 tons. Had the proportion of moisture remained at 10.78 per cent as in 1926, the total moisture content in 1927 would have been 5,605,600 tons. The increase of 0.53 per cent translated in weight is 275,600 tons. Washed ore has less moisture than unwashed, as washing removes much of the clay that holds moisture.

The weight of silica in the ore last year was approximately 4,472,000 tons. The increase in the percentage of silica meant the carrying of 130,000 tons more of this material than if there had been no increase.

Changes are occurring slowly, but perceptibly in the lake iron ore industry. In the past ten years, mechanization and beneficiation have been the outstanding features, mechanization cutting costs and beneficiation improving the product. Producers have been holding their ore to high standards, under adverse market conditions. The fluctuations in the analyses noted in 1927 are not of great importance immediately, but the trends strongly indicate more beneficiation, meaning more expense in production.

Defense Cartels a Real Need

DIFFERING opinions concerning the merit of the European iron and steel cartel system, which has flowered most luxuriantly in the continental steel entente, may be put to the impartial arbitrament of fact within the next year. No sharp crisis impends but conditions of both internal and export trade in the leading European producing countries are changing and a year hence, in April, 1929, the question of dissolution of the entente becomes pertinent for the first time.

The German viewpoint is being colored by a deterioration of the domestic situation. Concessions have had to be made to Germany and Czecho-Slovakia in regard to penalties for exceeding quotas. Poland still is knocking at the door. Domestic selling syndicates in France have complicated matters. British collaboration is not sought, and the trend in Britain from a producer of basic materials to a maker of finished products is more pronounced. No participant in the entente is now credited with a desire for dissolution, but the threat will become a weapon of the dissatisfied.

No less an authority than Herbert Hoover believes the European cartel to be an organism that cannot be transplated because it smacks of legislating economics. On the other hand, the American commissioner of the international chamber of commerce, at Paris, believes the cartels deserving of intelligent study. He admits, nevertheless, that American industry "could not have expanded to its present proportions of prosperity under similiar conditions." When the commissioner referred to "present proportions of prosperity" he cannot have read that iron and steel netted a bare 5 per cent last year, contrasted with almost 30 per cent for automobile makers. Otherwise he might have advocated the formation of defense syndicates for iron and steel makers.

What Our Readers Are Thinking

Mechanization Beneficial to Workers

To the Editor:

I READ the editorial that appeared in your April 5 issue entitled, "More Machinery Needed—Not Less," and I want to congratulate you on the attitude you have assumed toward this important question of employment.

During our recent extensive trip throughout the United States, we saw no indication of unemployment. On the other hand, there seemed to be ample work for those who wanted employment.

I am attaching an advertisement which appeared in a recent issue of the *New York Tribune* as inserted by the Patterson-Andress Co. Inc., which develops some very fine and definite information on this subject.

The opinion expressed by some that the installation of automatic or improved machinery might have a tendency to displace labor is, in my judgment, incorrect. Supposing that a plant did install improved machinery or other devices, labor would be called upon to produce it.

Improved methods are increasing automobile production and as more cars are produced and distributed there is more work for the garages, more work for repair shops, including painting, and more responsibility placed upon many others for the proper upkeep and care for the number of automobiles now in service, as well as from practical use of pleasure cars and also business vehicles. This idea of automobile machinery displacing labor is a fallacy that has long ago been exploded. Such installations may appear to displace labor on the part of those who install them, but the much broader general effect is beneficial to laborers or those who seek employment.

I am very optimistic as far as employment is concerned and I believe that there is more work now awaiting attention than there are men to perform it capably and efficiently.

I trust this expression of opinion may be of some interest to you, and again congratulating you upon the attitude you have assumed, I remain

CHARLES F. ABBOTT, *Executive Director,*
American Institute of Steel Construction, Inc.
New York, April 16, 1928.

IRON TRADE REVIEW

Volume 82, Number 18 — Published Every Thursday

E. L. SHANER, Editor. *J. D. PEASE, Advertising Director.* *F. F. LIGHT, Circulation Manager.*

Quaker Town Again Host to American Foundrymen. Page 119.

TWO hundred manufacturers of foundry equipment will take part in the exhibition at Philadelphia the week of May 14, coincident with the annual convention of the American Foundrymen's association. A summarized description of the exhibits is presented in this issue of IRON TRADE REVIEW. This issue also contains reports of recent conventions held by the National Metal Trades association, the National Foreign Trade council, Materials Handling section of the A. S. M. E.; American Electrochemical society, and American Welding society.

The Readers' Page

CONTENTS

For May 3, 1928

SPECIAL ARTICLES

A. F. A. Meeting Offers Opportunities 1119
Equipment for Modern Foundry To Be Shown at Philadelphia 1122
Foreign Trade Problems Analyzed by National Council 1128
Foundry Is Operated Continuously 1130
Spain's First International Foundry Congress Proves a Success 1134
Build Ford Ring Gear from Hot Rolled Special Shapes—By John D. Knox 1136
Materials Handling Engineers Hold First National Meeting 1140
Lake Ore Shows Slight Drop in Iron 1142
Mirrors of Motordom 1143
Tool Buyers Pressing for Delivery 1144
The Court Rules: Suit Against Salesman Affirms Sale 1148
Editorials 1149

BUSINESS TREND

First Quarter Steel Profits Improve By John W. Hill 1152

Steel Corporation Earnings 1152
Employment Index 1153
Industrial Production 1153
Detroit Employment 1154
Freight Car Loadings 1154
Foreign Trade 1155
Cost of Living 1155

MARKET REPORTS

Review of Markets 1156
Iron, Steel Prices 1156, 1157, 1158, 1161, 1198

Pig Iron 1159
Coke 1160
Ferroalloys 1160
Iron and Steel Scrap 1161
Nuts, Bolts, Rivets 1162
Semifinished 1162
Iron Ore 1162
Plates 1163
Bars 1163
Pipe 1164
Refractories 1165
Sheets 1165
Tin Plate 1165
Structural Shapes 1166
Reinforcing Bars 1167
RailroadEquipment 1168
Cold Finished Steel 1169
Wire and Nails 1169
Strip Steel 1169
Nonferrous Metals 1170
Coke By-Products 1170
Warehouse Markets 1171
Pacific Coast Markets 1172
Foreign Markets 1187
Machinery Markets 1189
Crane Inquiry and Awards 1189

GENERAL NEWS

Iron Production Gains; Stacks Drop 1174
March Foreign Trade Gains 1175
Metal Trades Convention Gives Stand on Industrial Problems 1177
Welders Adopt Test Standards 1179
Electrochemists Discuss Electric Heating 1181
Industrial Men in the Day's News—A. F. Cooke 1183

Men of Industry 1184
Obituary 1186
Here and There in Industry 1190
Construction and Enterprise 1192
Trade Publications 1197

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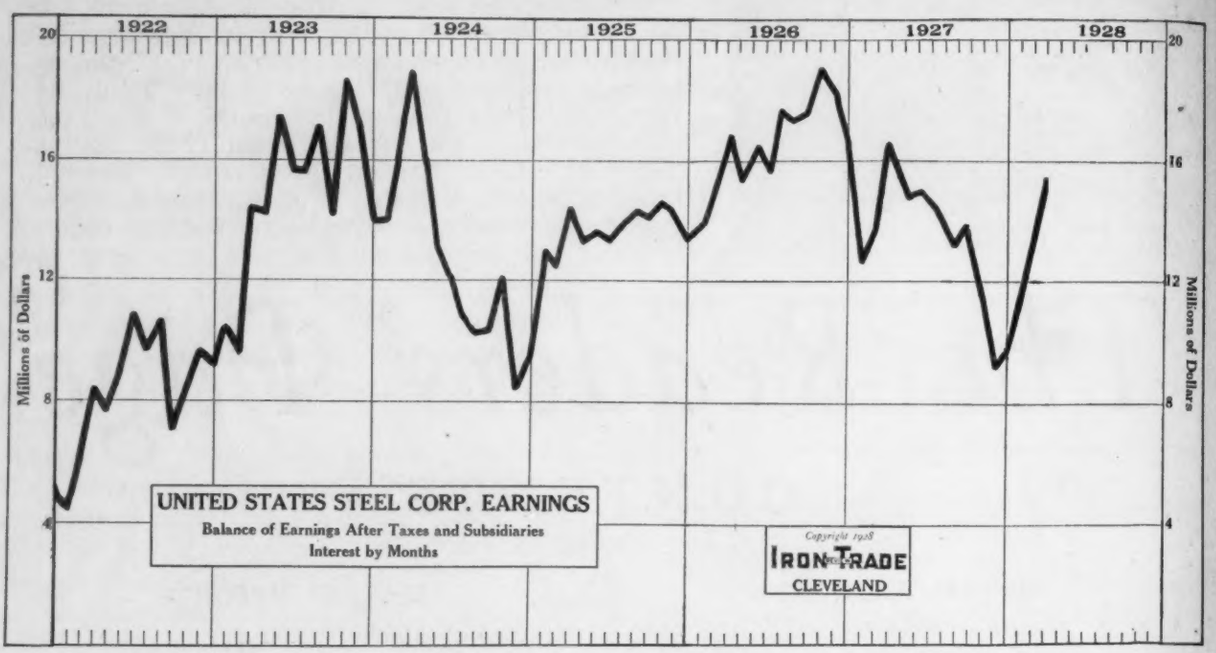
The Business Trend



First Quarter Steel Profits Improve

By JOHN W. HILL, Financial Editor

FIRST quarter earnings of the United States Steel Corp. contrasted with those of the first quarter of 1927 reveal the influence of prices upon profits in the iron and steel industry. Production in the first three months of 1928 was about 3 per cent over that of the corresponding period one year ago. Prices were lower by about 3 per cent. The result is that earnings of the corporation for the period of $40,934,032 were 10 per cent below that of one year ago.

APPARENTLY any gain in efficiency during the first three months of 1928 over one year ago was more than passed on to consumers in lower prices. Because of the fact that steel making operations stepped up from a low point of about 65 per cent of capacity late last year to more than a peak of 90 per cent during the first quarter of 1928, most company earnings improved.

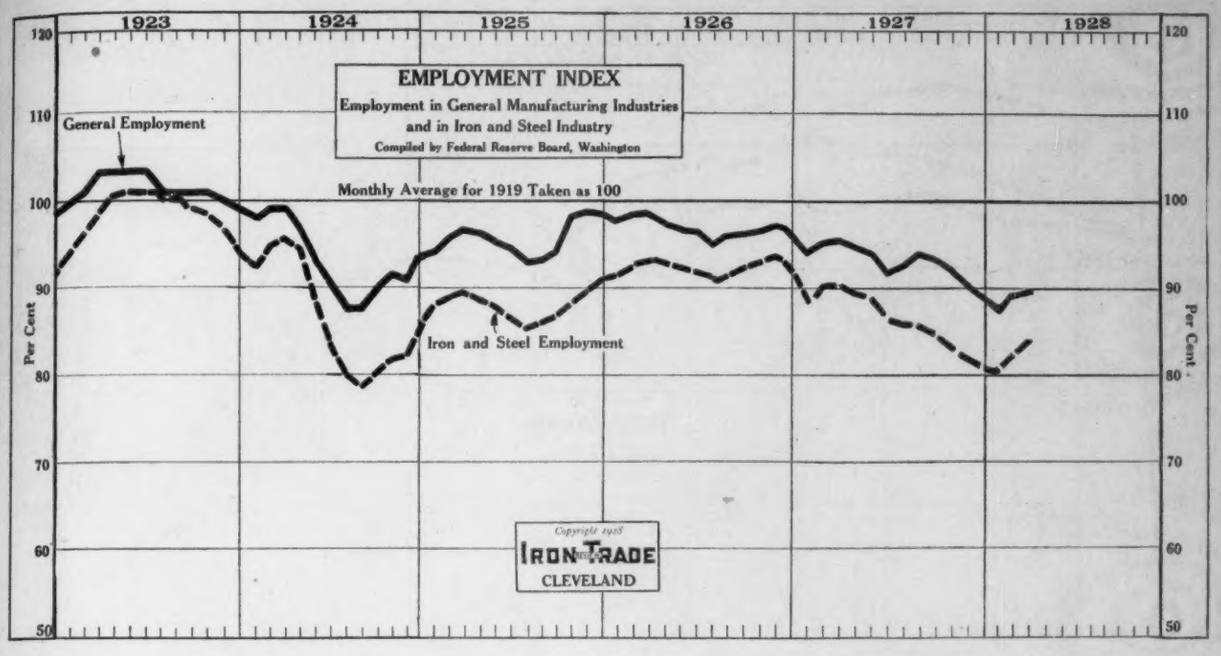
THE gain for the United States Steel Corp. in the first quarter of 1928 compared with the last quarter of the preceding year was 31 per cent. The firmer price level had little to do with this increase, because of the fact that most of the business done was on the basis of the lower levels that had prevailed late in 1927.

THE situation is graphically stated by President E. G. Grace of the Bethlehem Steel Corp. commenting upon the iron and steel situation in his quarterly report of earnings. According to Mr. Grace the average billing price on shipments of his company during the first quarter of this year was $2.76 a ton lower than during the first quarter of 1927. On the other hand the billing price shows an increase of 34 cents from the last quarter of 1927.

PRESIDENT GRACE pointed out that had selling prices been the same in the first quarter of this year as in the first quarter of 1927, the corporation would have made $2.60 per share on the common stock instead of only 94 cents per share. Thus is seen in tangible terms the effect of low price levels in the iron and steel industry on a given level of production.

WITH business moving well into the midst of the second quarter of the year, general conditions begin to favor continued good levels of operation. There has been some small recession in iron and steel production, but it is extremely likely that no such decline in production will take place this summer as in 1927.

The Business Trend

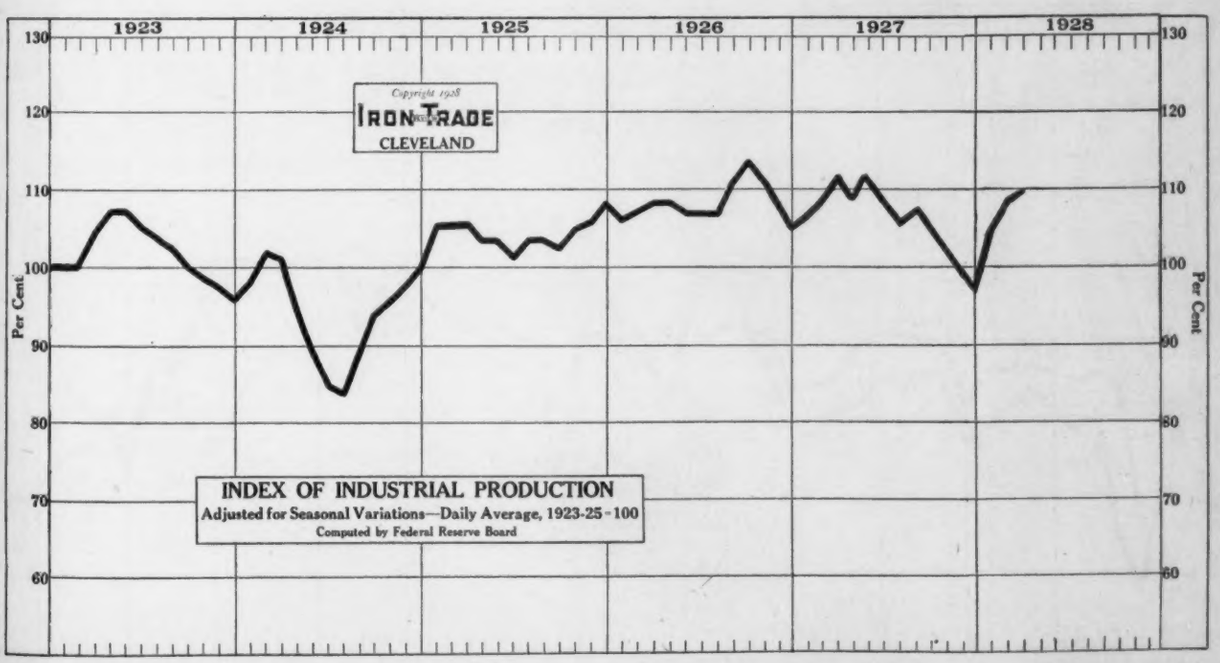


Employment Index

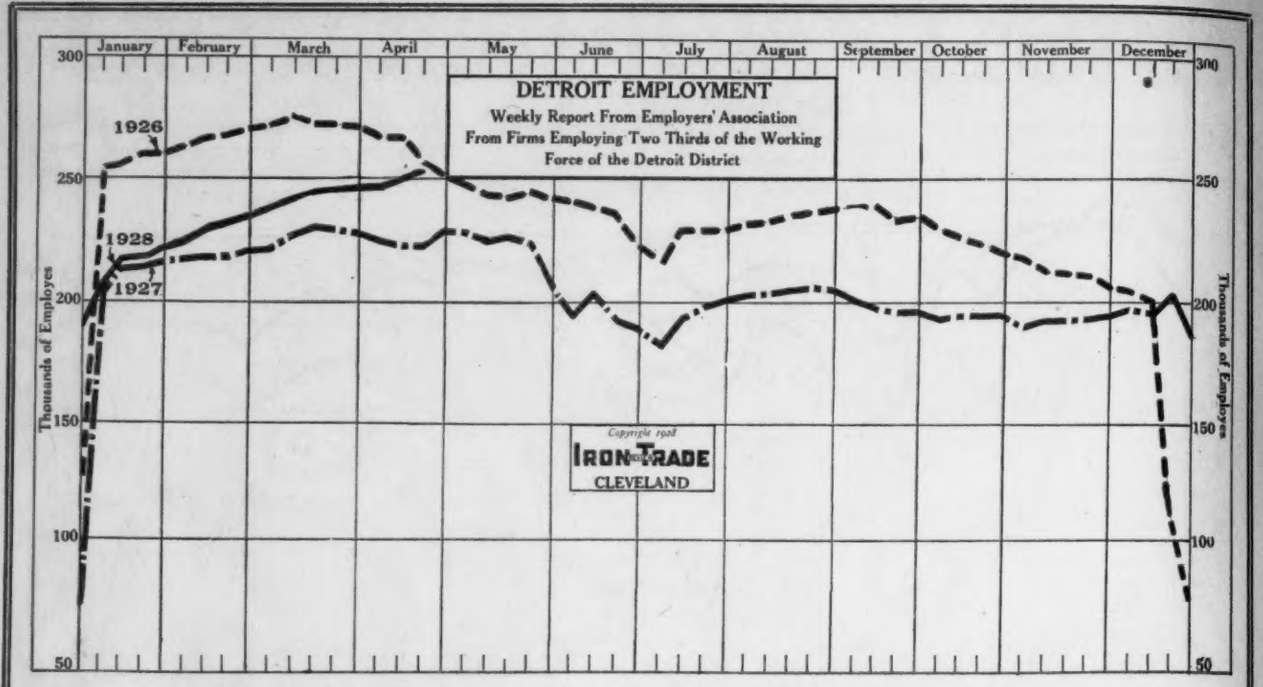
MOST of the widespread clamor with respect to serious industrial unemployment throughout the country heard early in the year has disappeared. Employment reached its ebb at about the close of 1927 and the early months of this year brought prompt and unmistakable improvement. The index of employment in the iron and steel industry stood at 84 in March compared with 80 in January. The total employment index stood at 89.9 in March compared with 89.4 one month before.

Industrial Production

THE first quarter year brought important increase in industrial production. The index computed by the Federal Reserve board stood at 110 for March compared with 109.6 the preceding month and about 97 in December. The December index marked the lowest level of recession of industrial production of any time since in 1924. It reflected the decline of iron and steel, automobiles, and other important industrial activities and the upward turn since the beginning of the year reflects their improvement.



The Business Trend

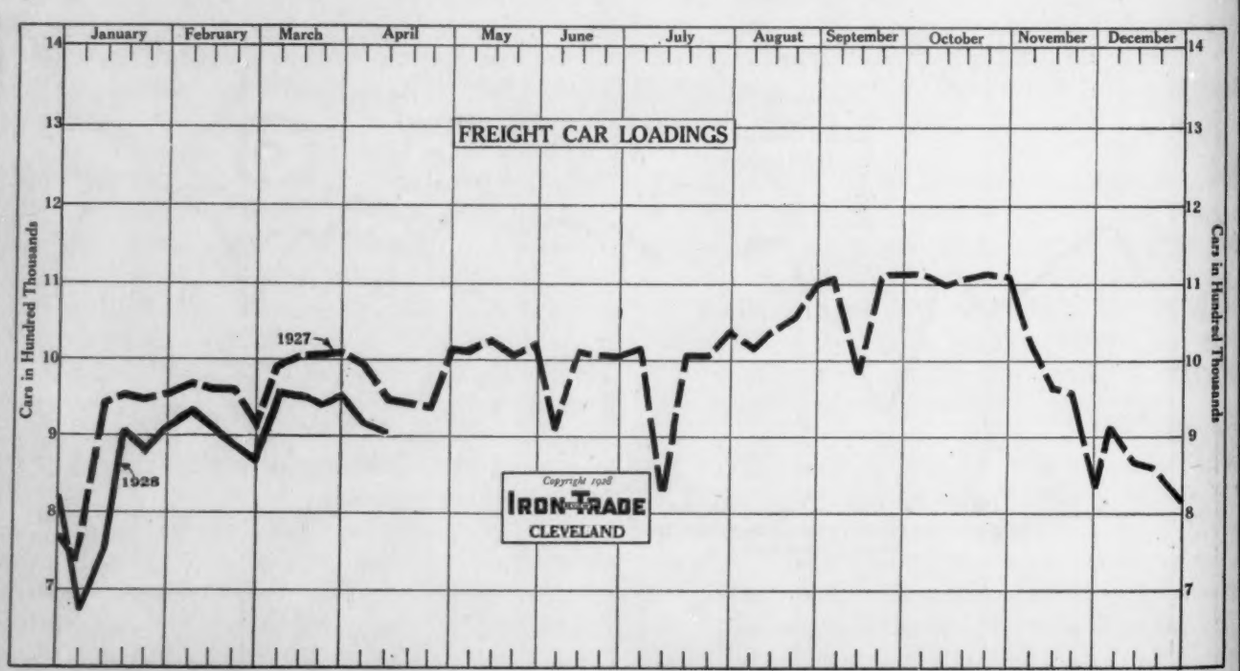


Detroit Employment

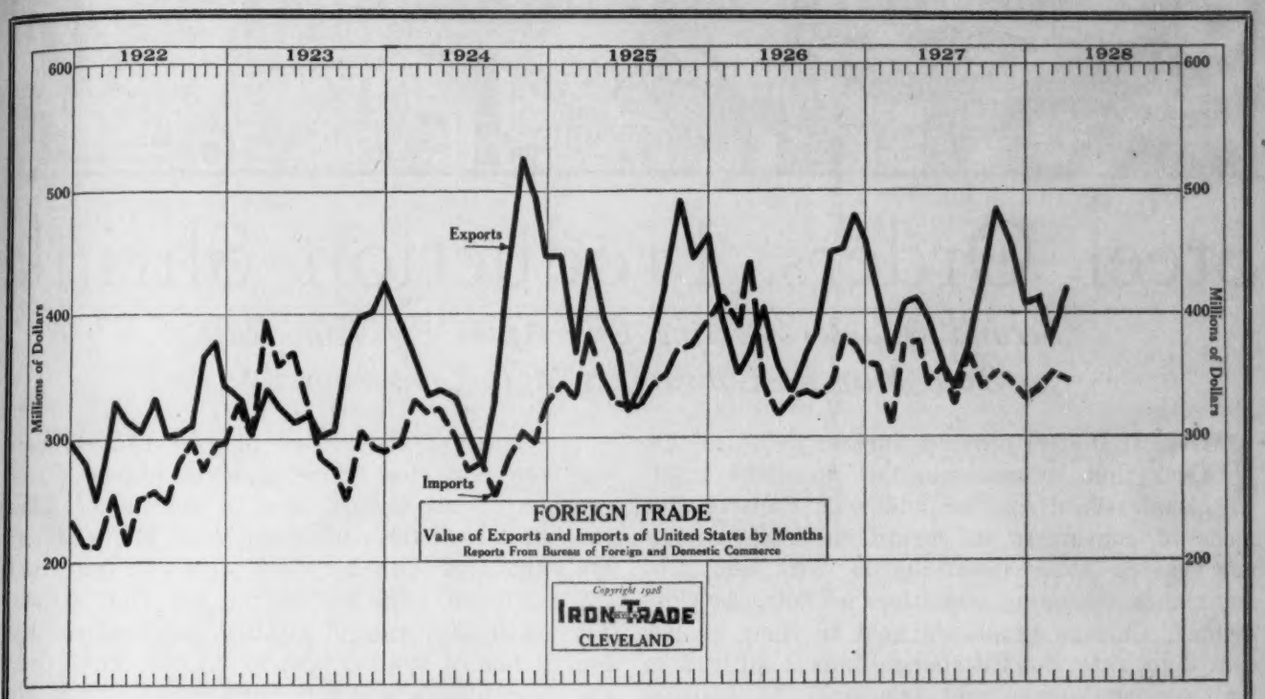
EMPLOYMENT at the automobile center of Detroit continues to gain, in spite of the fact that there are some evidences of tapering off of production of motor cars by some companies. Apparently this is being more than over balanced by gains for other companies. The Ford Motor Co. production, for instance, now is estimated at 3500 cars daily, a steady increase being recorded. In the week ended April 24 Detroit employment stood at 252,515 the highest of any week in the year.

Freight Car Loadings

FREIGHT car loadings in the second week of April declined somewhat from the preceding week. A total of 912,377 cars was in fact the lowest of any week since the last week of February. Compared with one year ago there was a reduction of 37,184 cars loaded. The reduction from one year ago is rather striking in view of the fact that in April, 1927, the coal strike was under way and a large decline in coal car loadings had appeared. Iron and steel freight movements have been heavy.



The Business Trend

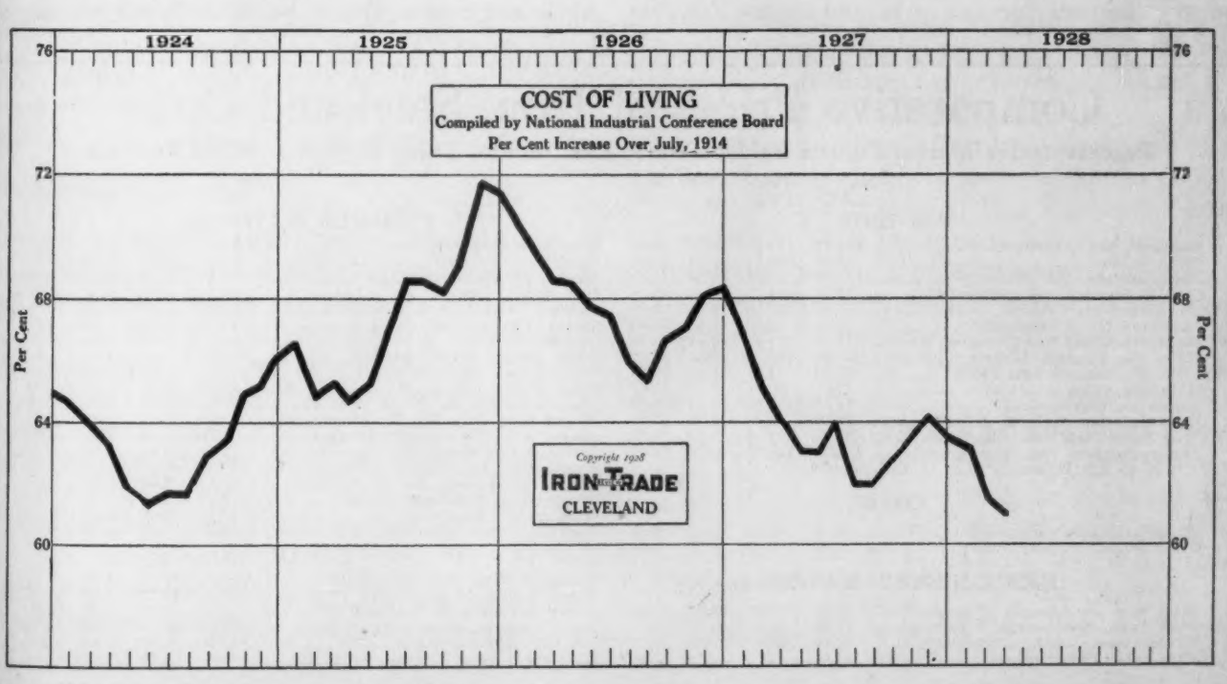


Foreign Trade

THE most important phase of the foreign trade figures for March is that showing the large volume of exports of gold. During the month gold exports totaled $97,536,000 while imports were only $2,683,000. Exports of gold for the month were the highest of any month in the history of the country and since last fall nearly $300,000,000 of gold have been exported from this country. Exports of merchandise in March were $423,000,000 compared with $373,000,000 one month before.

Cost of Living

LIVING costs are now at the lowest level of any time since the middle of 1923. National Industrial Conference Board's cost of living index in March was 61.1 per cent over the 1914 level. This compared with 61.5 per cent one month before and with 64.1 per cent one year ago. Not since June of 1923 has the cost of living index been so low. Declines compared with a year ago have resulted from lower rent from dwellings, cheaper fuel and lighting and lower prices for sundries.



Steel Orders, Production Shrink

Second Quarter Decline On—April Pig Iron Rate Tops March—Consumers More Conservative

FINISHED steel provides further evidence this week that it has embarked upon the traditional second quarter letdown. Conservative ideas of consumers in regard to fresh buying now govern their specifying as well, and production is becoming sensitive to both developments. Chicago producers hold to their 95 per cent ingot rate, but Pittsburgh finds it difficult to maintain an 80 per cent rate and the national steelmaking average is now scarcely 80 per cent, or 5 points below the high of a month ago.

Autos, Freight Cars, Sustain Market

Automotive consumption of steel, while more checkered, continues substantially at the April rate in the aggregate and it may be late May before this major support will fail the steel industry. Railroad car buying is a shade brisker and rolling of track material entails practically capacity operations. But the other two leading outlets for finished steel are a liability. Only with difficulty does building demand for steel cling to the seasonal average, despite heavy inquiry, and oil country demand for line pipe and tanks is light.

The start of the second quarter decline finds the iron and steel industry on a higher plane, considering all factors, than a year ago. That the impetus of the early months of the year was not exhausted with a record March is borne out by continued improvement in pig iron output. The April daily rate of 105,979 tons bettered the March rate of 103,199 tons by 2.7 per cent. Only the short month kept the April total of 3,179,385 tons under the 3,199,175 tons of March. April failed to measure up with last April by about 7 per cent, but in the past year steel production has become a better barometer than pig iron. A decline in pig iron output in May is forecast by the net loss of two active stacks, 194 being in blast April 30 against 196 March 31.

Pig Iron Sales Hold Volume

Pig iron sales show a moderate gain over last week, considering all districts. At New York 15,000 tons has been booked, due to coverage by some large melters. About 5000 tons, chiefly for third quarter delivery, has been closed at Boston. April shipments from the lake furnaces staged

Comparative Prices of Iron, Steel and Coke

Representative Market Figures for This Week, Last Month, Three Months and One Year Ago

	May 2, 1928	Apr. 1928	Feb. 1928	May 1927
PIG IRON				
Bessemer, del. Pittsburgh	$19.26	19.26	19.26	20.86
Basic, valley	16.00	16.75	17.00	18.10
Basic, eastern, del. eastern Pa.	19.25	19.25	19.50	20.75
*No. 2 foundry, del. Pittsburgh	19.01	19.01	19.01	20.26
No. 2 foundry, Chicago	18.50	18.50	18.50	20.00
*Southern No. 2 Birmingham	16.00	16.00	16.00	18.00
*Southern Ohio, No. 2 Ironton	19.00	19.00	19.00	20.00
**No. 2X, Virginia furnace	20.50	20.50	20.50	22.00
**No. 2X, eastern, del. Phila.	21.26	21.26	20.91	22.26
Malleable, valley	17.25	17.25	17.25	18.50
Malleable, Chicago	18.50	18.50	18.50	20.00
Lake Superior charcoal del. Chicago	27.04	27.04	27.04	27.04
Gray forge, val., del. Pittsburgh	18.76	18.56	18.51	19.76
Ferromanganese, del. Pittsburgh	104.79	104.79	104.79	99.79
*1.75 to 2.25 silicon. **2.25 to 2.75 silicon.				
COKE				
Connellsville, furnace, ovens	2.50	2.60	2.65	2.80
Connellsville, foundry ovens	3.60	3.65	3.75	3.80
SEMIFINISHED MATERIAL				
Sheet bars open-hearth, Youngstown	32.50	32.75	34.00	34.00
Sheet bars, open-hearth, Pittsburgh	34.00	34.00	34.00	33.75
Billets, open-hearth, Pittsburgh	33.00	33.00	33.00	33.00
Wire rods, Pittsburgh	44.00	44.00	43.50	42.00

	May 2, 1928	Apr. 1928	Feb. 1928	May 1927
FINISHED MATERIAL				
Steel bars, Pittsburgh	1.85	1.85	1.85	1.85
Steel bars, Chicago	2.00	2.00	1.95	2.00
Steel bars, Philadelphia	2.17	2.17	2.17	2.17
Iron bars, Chicago	2.00	2.00	1.95	2.00
Shapes, Pittsburgh	1.85	1.85	1.85	1.85
Shapes, Philadelphia	2.07	2.08	2.08	2.07
Shapes, Chicago	2.00	2.00	1.95	2.00
Tank plates, Pittsburgh	1.85	1.85	1.85	1.85
Tank plates, Philadelphia	2.10	2.10	2.10	2.17
Tank plates, Chicago	2.00	2.00	1.95	2.00
Sheets, black, No. 24, Pittsburgh	2.75	2.75	2.85	2.90
Sheets, blue anl., No. 10, Pittsburgh	2.00	2.05	2.10	2.25
Sheets, gal., No. 24, Pittsburgh	3.65	3.65	3.65	3.80
Sheets, black, No. 24, Chicago	2.90	3.05	3.05	3.10
Sheets, blue anl., No. 10 Chicago	2.20	2.25	2.25	2.40
Sheets, galvanized, No. 24, Chicago	3.75	3.90	3.90	3.95
Plain wire, Pittsburgh	2.50	2.50	2.45	2.40
Wire nails, Pittsburgh	2.60	2.60	2.60	2.55
Tin plate, per base box, Pittsburgh	5.25	5.25	5.25	5.50
SCRAP				
Heavy melting steel, Pittsburgh	15.00	14.85	15.05	15.50
Heavy melting steel, eastern Pa.	13.75	13.75	14.00	14.45
Heavy melting steel, Chicago	13.00	12.75	12.55	12.35
No. 1 wrought, eastern Pa.	15.25	15.25	15.25	16.75
No. 1 wrought, Chicago	12.90	12.45	12.40	12.75
Rails for rolling, Chicago	14.00	14.00	15.00	15.10

Current Prices for Rolled Steel Products

PRICES IN CENTS PER POUND UNLESS OTHERWISE INDICATED

STEEL PLATES

Pittsburgh	1.85c to 1.90c
Philadelphia, del.	2.10c to 2.15c
New York, del.	2.175c to 2.225c
Boston, del.	2.265c to 2.415c
Chicago	2.00c
Cleveland	2.04c to 2.09c
Buffalo	2.00c
Coatesville, Sparrows Point	2.05c
Birmingham	2.05c
Pacific coast, c.i.f.	2.25c to 2.30c

STRUCTURAL SHAPES

Pittsburgh	1.85c to 1.90c
Philadelphia, del.	2.07c to 2.18c
New York, del.	2.14c to 2.19c
Boston, del.	2.265c to 2.415c
Chicago	2.00c
Cleveland, del.	2.04c to 2.09c
Buffalo	2.00c
Bethlehem	2.05c
Birmingham	2.05c
Pacific coast, c.i.f.	2.35c

BARS

SOFT STEEL

Pittsburgh	1.85c to 1.90c
Chicago	2.00c
Birmingham	2.05c
Buffalo	2.00c
San Francisco	2.35c
Cleveland mill	1.85c to 1.90c
Cleveland delivered	1.87½c and 2.09c
Philadelphia, delivered	2.17c
New York, delivered	2.19c
Boston, delivered	2.265c to 2.415c
Pittsburgh, cold finishing	2.00c to 2.05c
Pittsburgh, forging quality	2.10c to 2.15c

RAIL STEEL

Chicago	1.85c
Eastern mills	1.75c

IRON

Chicago	2.00c
New York, delivered	2.14c to 2.24c
Philadelphia, delivered	2.12c to 2.22c
Pittsburgh, refined	2.75c to 4.25c

REINFORCING

Pittsburgh, billet	1.85c to 1.90c
Chicago, billet	2.15c to 2.65c
Chicago, rail steel	1.85c to 1.95c
Youngstown, billet	1.90c to 2.00c

COLD FINISHED STEEL

Cold finished steel bars, drawn or rolled, Pitts., Chi., c.l.	2.20c
Shafting (turned, polished) Pittsburgh	2.20c
Shafting (turned, ground) mill (Depending on size, 1 3/16 to 7-inch)	2.45c to 2.90c
Cold finished steel bars, Cleve.	2.25c

TIN AND TERNE PLATE

Prices per 100-pound box, Pittsburgh

*Tin plate, coke base	$5.25
Gary, Ind., base 10 cents higher.	
Long ternes, primes, No. 24	4.10c

*Price subject to quantity differentials.

SHEETS

SHEET MILL BLACK

No. 24, Pittsburgh base	2.70c to 2.85c
No. 24, Philadelphia, delivered	3.07c to 3.22c
No. 24, Gary, Indiana Harbor	2.85c to 3.00c
No. 24, Chicago, delivered	2.90c to 3.05c
No. 24, Birmingham, base	3.05c

TIN MILL BLACK

No. 28, Pittsburgh, base	2.90c
No. 28, Gary, base	3.00c

GALVANIZED

No. 24, Pittsburgh, base	3.60c to 3.75c
No. 24, Philadelphia, delivered	3.92c to 4.07c
No. 24, Gary, Indiana Harbor	3.70c to 3.85c
No. 24, Chicago, delivered	3.75c to 3.90c
No. 24, Birmingham, base	3.90c

BLUE ANNEALED

No. 10, Pittsburgh base*	1.95c to 2.10c
No. 10, Philadelphia, delivered	2.32c to 2.42c
No. 10, Gary, Indiana Harbor	2.15c to 2.20c
No. 10, Chicago, delivered	2.20c to 2.25c
No. 10, Birmingham, base	2.25c

*Plus 10 cents for 40 inches or wider.

AUTOMOBILE

No. 20, Pittsburgh base	4.00c

IRON

No. 10, Pitts., blue ann., c.l.	2.80c
No. 24, Pitts., box annealed, 1-pass cold roller, carload	3.75c
No. 24, Pitts., gal., c.l.	4.85c

(Turn to the following page)

the fourth consecutive monthly gain this year, with last week's sales 22,000 tons. A pipemaker in the Pittsburgh district has placed 10,000 tons. April sales at Chicago topped those of March, although shipments tapered slightly. Basic iron in the Mahoning valley is $16 to $16.50 on the basis of a recent transaction.

Activity in soft steel bars has revived sufficiently at Chicago to make specifications and bookings approximate shipments, but in other districts a distinct lag is evident. Miscellaneous buying of plates is good at Chicago, but makers lack tonnage. Structurals are easier in all districts, with the Chicago-Milwaukee-Minneapolis district the most promising. Prompt deliveries can be made on all heavy products by Pittsburgh mills. On heavy steel 1.85c, Pittsburgh, and 2.00c, Chicago, govern, with some intimation of an effort to raise the market at Pittsburgh to 1.90c for third quarter requirements.

Sheet Market Is Heavy

Autobody sheet requirements are such as to maintain practically capacity operations in the Mahoning valley, but other grades are more sluggish. The resulting competition for business is weighing heavily on the price structure, though some makers will not meet competition below 2.75c, Pittsburgh, on black, 2.00c, on blue annealed and 3.65c on galvanized. Specifications for packers' and general line cans are broad enough to sustain tin plate production at 95 per cent.

Weather conditions have had an adverse effect upon cast iron pipe buying, especially for municipal work, but May lettings by New York City are expected to be heavy as usual. April shipments of merchant pipe from Mahoning valley mills exceeded the March total, reflecting spring building demand and specifications anticipatory of the $2 advance, which now faces a test.

Car Inquiry Is Improved

Formal inquiry from the Erie railroad embraces 1005 freight and 35 passenger cars, 36 locomotives and repairs to 2485 freight cars. Including 300 refrigerator express for the Pennsylvania, 200 passenger cars and trailers for the Chicago Rapid Transit, and 200 flat cars for the Chicago, St. Paul, Minneapolis & Omaha, about 2900 cars are pending. Both the New York Central and Pennsylvania are expected in the freight car market this quarter. The Southern Pacific has closed on 175 tank cars, the Virginian on 1000 hopper bodies, the Northwestern Refrigerator Line on 500 refrigerator cars and the Rock Island on 500 underframes. Track fastening sales are heavy at Chicago.

Composite Market Average

Based on Pig Iron, Billets, Slabs, Sheet Bars, Wire Rods, Steel Bars, Plates, Structural Shapes, Black, Galvanized and Blue Annealed Sheets, Tin Plate, Wire Nails and Black Pipe

This week (May 2, 1928)	$35.56
Last week April 25, 1928	35.56
One month ago (April, 1928)	35.67
Three months ago (February, 1928)	35.62
One year ago (May, 1927)	36.76
Ten years ago (May, 1918)	56.59
Fifteen years ago (May, 1913)	27.34

The IRON TRADE REVIEW composite of fourteen leading iron and steel products is unchanged this week at $35.56, which contrasts with an average of $35.67 for April and $36.76 last May.

Current Rolled Steel Prices

PRICES IN CENTS PER POUND UNLESS OTHERWISE INDICATED
SEE ALSO PRECEDING PAGE

HOOPS, BANDS, STRIP

Hot strip, under 3-inch, Pitts. 2.15c to 2.40c
Hot strip, 3 to 6-inch, Pitts. 2.00c to 2.10c
Hot strip, 6 to 12-inch, Pitts. 1.85c to 2.00c
Hot rolled strip, 12 to 24-inch 16 gage and heavier, coils or cut lengths, 1.85c plate basis, or 2.00c blue annealed basis.
Hot strip, under 3-in., Chi..... 2.30c to 2.50c
Hot strip, 3 to 6-in., Chi..... 2.20c to 2.30c
Hot strip, 6 to 12-in., Chi..... 2.00c to 2.10c
Hot strip, 12 to 24 in., Chi., 2.10c to 2.20c, blue annealed sheet basis.
Cold rolled strip, hard coils, 1½ inches and wider by 0.100-inch and heavier base, Pitts., Cleve., (over 3 tons) ..... 2.75c to 2.90c
Pitts., Cleve., (1-3 tons).... 3.00c to 3.15c
Worcester, Mass. 3.05c

ALLOY STEEL

Hot Rolled

F.o.b. Pittsburgh or Cleveland

Alloy Quality Bar Base is 2.65c

S.A.E. Series Number	Alloy differential	Net price 100 lb. bars
2000	0.25	$2.90
2100	0.55	3.20
2300	1.50	4.15
2500	2.25	4.90
3100	0.55	3.20
3200	1.00	3.65
3300	3.80	6.45
3400	3.20	5.85
4100 0.15-0.25 Mo.	0.50	3.15
4100 0.25-0.40 Mo.	0.70	3.35
4600 0.20-0.30 Mo. 1.25-1.75 Ni.	1.05	3.70
5100 0.60-0.90 Cr.	0.35	3.00
5100 0.80-1.10 Cr.	0.45	3.10
5100 Chrome Spring	0.20	2.85
6100 Bars	1.20	3.85
6100 Spring Steel	0.95	3.60
Chrome Nickel Vanadium....	1.50	4.15
Carbon Vanadium	0.95	3.60
9250	0.25	2.90

TUBING

BOILER

Carload Discounts—Less-carloads 4 points Lower—F.o.b. Pittsburgh Mills

Steel 3¼ to 3¾-inch 42½
Charcoal iron, 3¼ to 4½-inch 9
Seamless hot rolled 3¼ to 3½-inch.... 46

Further discounts of five to seven 5 per cents for carloads on lap welded steel. On seamless hot rolled several more 5 per cents, and on charcoal from one 10 per cent to two 10 and one 5 per cents.

COLD DRAWN SEAMLESS

F.o.b. mill in desirable quantities

Random lengths over 5 ft.....55 per cent
Selected lengths, 1 to 18 ft.....53 per cent

WIRE PRODUCTS

To Jobbers in Carloads

F.o.b. Cleveland and Pittsburgh base. Dealers 5 cents per 100 pounds extra

Bright plain wire, No. 9 gage.. 2.50c
Annealed fence wire 2.65c
Galvanized wire, No. 9 gage.... 3.10c
Barbed wire, painted 3.10c
Barbed wire, galvanized 3.35c

	Per 100 lbs.
Wire nails	$2.55 to 2.65
Galvanized nails	4.55 to 4.65
Polished staples	3.00 to 3.10
Galvanized staples	3.25 to 3.35
Coated nails, 100 lb. kegs, Sept. 1, 1926 extras apply....	2.55 to 2.65
Woven wire fencing (retailers) 12½ gage, 26-in. high 7-in. bars and 12-in. stays, per 100 rods, f.o.b. Pitts.....	$20.03

Joliet, DeKalb and Waukegan, Ill., Anderson, Ind., and Chicago prices $1 per ton over Cleveland-Pittsburgh base on products made there; Duluth $2 higher, Worcester, Mass., and Fairfield, Ala., $3 higher.

CAST IRON WATER PIPE

Prices per net ton

Class B Pipe

Six-inch and over, Birming'm $30.00 to 31.00
Four-inch, Birmingham ..... 34.00 to 35.00
Four-inch, Chicago ..... 42.20 to 44.20
Six-inch to 24-inch, Chicago.... 38.20 to 40.20
Four-inch, New York ..... 40.50 to 41.85
Six-inch and over, New York 37.25 to 38.25
Standard fittings, Bir. base..... $100.00

Six to 24-inch, base; over 24-inch, plus $20; 4-inch, plus $10; 3-inch, plus $20; gas pipe fittings, $5 higher.

Class A pipe is $4 higher than Class B.

IRON AND STEEL PIPE

Base Discounts Pittsburgh and Lorain, O., to Jobbers in Carloads

	Black	Galv.
1 to 3-inch butt steel*	62	50½
1 to 1½-inch butt iron	30	13

Indiana Harbor, Ind., and Evanston, Ill., 2 points less, Chicago del., 2½ points less.

*To large jobbers these discounts are increased on black by 1 point and a supplementary discount of 5 per cent; on galvanized by 1½ points with a supplementary 5 per cent.

CHAIN, PILING, CUT NAILS

Cut nails, c.l., f.o.b. mills..... 2.80c
Chain, 1-in, proof coil, Pitts..... 6.00c
Sheet piling base, Pittsburgh.. 2.25c to 2.35c

RAILS, TRACK MATERIAL

Standard bessemer rails, mill $43.00
Standard open-h'th rails, mill $43.00
Relaying rails, St. Louis.....$24.00 to 31.00
Relay, rails, Pitts. 60 to 90 lb..$27.00 to 30.00
Light rails, 25 to 45, mills..... $36.00
Angle bars, Chicago base..... 2.75c
Spikes, railroad, Pittsburgh.... 2.80c
Spikes, small railroad, ⅞-inch and smaller, Pitts..... 2.80c
Spikes, boat and barge, Pitts. 3.00c
Spikes, railroad, Chicago 2.80c
Track bolts, Pitts., stand.... 70 off list
Track bolts, Chicago 3.80c
Tie plates, Chicago, Pitts..... $43.00

BOLTS AND NUTS

F.o.b. basing points, Pittsburgh, Cleveland, Birmingham and Chicago.

Discounts are for legitimate jobbing or large consuming trade purchasing in full-case lots, apply to lists of April 1, 1927.

Small lots are 55 to 60 per cent off.

CARRIAGE BOLTS

All sizes, cut thread ..... 70 off

Rolled thread ⅝x6 and smaller take 10 per cent lower list.

Eagle list .....70 off

MACHINE BOLTS

All sizes, cut thread ..... 70 off

Rolled thread ⅝x6 and smaller take 10 per cent lower list.

Lag screws ..... 70 off
Plow bolts, Nos. 1-2-3-7 heads ..... 70 off
Tap bolts ..... 70 off
Blank bolts ..... 70 off
Stud bolts without nuts ..... 70 off
Stove bolts, 75, 20, 10 and 5 off in pkgs. 75, 20, 10 and 5 with 2½ off in bulk.
Tire bolts .....60-5 off

NUTS

Semifinished .....70 off

HEXAGON CAP SCREWS

Milled .....80-10-10 off
Upset 1-in. diam. and smaller .....85-5 off

SQUARE HEAD SET SCREWS

Milled .....80-10 off
Upset 1-in. diam. and smaller....80-10-10 off

RIVETS

Struct., c.l., Pitts.-Cleve..... 2.90c
Structural, c.l., Chicago..... 3.00c
**⅞-inch and smaller, Pitts.....70 and 10 off
Chi., Cleve. .....70 to 70 and 10 off
**Some makers quoting 70 off with freight allowed on 300 pounds or more.

WASHERS

Wrought, c.l., Pitts. dist.....$6.75 off
Wrought, c.l., Chicago dist....$6.70 to 6.90 off
Lock: To dealers .....85-5 off
Lock: To consumers .....85 off

Raw Materials and Semifinished Products

SEMIFINISHED MATERIAL

Prices per gross ton

BILLETS AND BLOOMS
4 x 4-inch base

Pittsburgh, open-hearth $33.00
Pittsburgh, bessemer 33.00
Youngstown 33.00
Cleveland 33.00
Philadelphia 38.30
Chicago 34.00
Forging, Chicago ..... 39.00 to 43.00
Forging, Pittsburgh 38.00
Forging, Philadelphia 43.30

SHEET BARS

Pittsburgh 34.00
Youngstown ..... 32.50 to 33.00
Cleveland ..... 32.50 to 33.00
Chicago 35.00

SLABS

Pitts., Young., and Cleve..... $33.00

WIRE RODS

Pittsburgh, Cleveland $44.00
Chicago 45.00

SKELP

All grades, Pittsburgh 1.85c

IRON ORE

LAKE SUPERIOR ORE
Per Gross Ton, Lower Lake Ports

Old range bessemer, 51½%.... $4.55
Mesabi bessemer, 51½% 4.40
Old range bessemer, 51½%..... 4.40
Mesabi nonbessemer, 51½%..... 4.25

EASTERN LOCAL ORES
Cents per unit delivered at Eastern Pennsylvania and New Jersey furnaces

Foundry and basic, 58-63%..... 8.00 to 8.50
Copper free low phosphorus 58 to 65 per cent ..... nominal

FOREIGN IRON ORE
Cents per unit, alongside docks, Atlantic ports

Foreign manganiferous ore, 45-55% iron, 6-8% manganese 10.00 to 10.50
North African low phosphorus nominal
Swedish foundry or basic, 65% 9.00 to 9.50
Spanish and North African basic, 50 to 60 per cent..... 8.50 to 9.00
Newfoundland foundry, 55%.... 9.00 to 9.50

MANGANESE ORE

Prices do not include duty of 1 cent per pound of metallic manganese contained.

Brazilian .....36 to 38 cents
Indian .....36 to 38 cents
Caucasian (53-55 per cent) .....38 to 40 cents

FLUORSPAR

85 and 5 per cent grade

Washed gravel, Kentucky and Illinois mines, per net ton....$15.00 to 16.00
Washed gravel, imported duty paid, east. tidewater, net ton 15.00 to 16.00

REFRACTORIES

FIRE CLAY BRICK

Per 1000 f.o.b. works

First Quality

Pennsylvania .....$43.00 to 46.00
Ohio ..... 43.00 to 46.00
Illinois ..... 43.00 to 46.00
Kentucky ..... 43.00 to 46.00
Missouri ..... 43.00 to 46.00
Maryland ..... 43.00 to 46.00
Georgia and Alabama ..... 40.00 to 45.00

Second Quality

Pennsylvania ..... 35.00 to 38.00
Ohio ..... 35.00 to 38.00
Illinois ..... 35.00 to 38.00
Kentucky ..... 35.00 to 38.00
Missouri ..... 35.00 to 38.00
Maryland ..... 35.00 to 38.00
Georgia and Alabama ..... 30.00 to 35.00

SILICA BRICK

Pennsylvania 43.00
Joliet, Ill., East Chicago, Ind.... 52.00
Birmingham 51.00

MAGNESITE BRICK
Per Net Ton

9 x 4½ x 2½ 65.00

MAGNESITE

Net Ton Chester, Pa., and Baltimore base

Dead-burned grain magnesite.. 40.00

CHROME BRICK

Net Ton Chester, Pa., and Baltimore base

9 x 4½ x 2½ 45.00

Pig Iron

Market Activity Is Fair—Shipments Hold Up—10,000 Tons of Pipe Iron Placed—Basic Price Is $16 to $16.50 Valley

SALES of pig iron are limited mainly to moderate size lots for filling-in purposes, with a few orders for third quarter. Leading producers report April shipments were better than March, thus continuing the progressive monthly increase since the first of the year. Pig iron made by furnaces at Cleveland and Buffalo is beginning to arrive by vessel in the Chicago district. A melter in western Pennsylvania district is reported to have closed for 10,000 tons of pipe iron. Basic iron is quotable at $16 to $16.50, valley. A valley maker quoted $16.50, valley, on the 3000 to 5000 tons reported placed last week, for delivery to Alliance, O. A quotation of $17, delivered, on a $1.01 freight failed to obtain the business which is understood to have been placed at $16.75, delivered.

PITTSBURGH, May 1.—The valley basic pig iron market is slightly clarified because the recent sale of 3000 to 5000 tons to the American Steel Foundries for Alliance, O., developed the fact at least one valley furnace quoted $16.50, valley. Other makers have since adopted that figure; stating, however, they will not quote less. One producer offered a lower valley equivalent when it quoted $17, delivered, Alliance, on a freight rate of $1.01. No inquiries are current at present. Bessemer iron still is selling in single carloads at $17.50, though large tonnages undoubtedly could be placed at lower figures. Small lots of foundry and malleable iron still bring $17.25. No large inquiries are pending. It is understood a pipe plant has closed on at least 10,000 tons of iron from a western Pennsylvania furnace.

The average price of bessemer iron in April was $17.50, the same as in March, according to W. P. Snyder & Co. Basic iron was sold at an average price of $16.70 in April, against $17 in March.

Boston, May 1.—About 5000 tons of pig iron was booked in the past week, the Mystic furnace taking 2000 tons. Buffalo and New York state iron also figured in the sales. Most of the orders are for third quarter. Connecticut foundries are busier than for some time. Two or three fairly large foundries are sounding out the market. It is reported $16, base, Buffalo, still is being quoted.

New York, May 1.—Sales of pig iron the past week aggregated more than 15,000 tons. Crane Co., Bridgeport, Conn., is inquiring for 1000 tons of foundry iron. Worthington Pump & Machinery Corp. is inquiring for 275 tons of foundry iron for Harrison, N. J. Moore Bros. Co., Elizabethport, N. J., wants 100 tons of foundry iron. Eastern Malleable Iron Co. is understood to have closed on about 3000 tons of malleable during the past two weeks for various plants. Prices are unchanged. Buffalo foundry iron is $16 to $16.50, base, Buffalo, and occasionally silicon differentials are waived. Eastern Pennsylvania foundry iron continues $20, base, furnace.

Freight rates on pig iron from Troy, N. Y., to points taking New York, New Haven & Hartford railroad delivery, have been placed on a mileage basis, effective May 8, the change involving reductions of 31 cents to $1.01 a ton. The Delaware & Hudson Co. has effected a reduction of 13 cents a ton in its freight rate on pig iron from Port Henry, N. Y., to Albany, N. Y., where the iron is to be reshipped by water from Albany to further destinations. The new rate is $1 a ton and this includes the cost of discharge into vessels but does not include stowing. The new rate became effective April 12.

Plans of one of the Buffalo furnace interests to lease dock space along the Jersey waterfront for storage of pig iron shipped by barge from Buffalo have not yet been carried out. The intention is to carry in stock iron shipped by barge from Buffalo and reship it as needed to point in northern New Jersey and eastern Pennsylvania where the combination of canal and railroad freight rates is considerably lower than the all rail rate from Buffalo. Similar plans are under consideration for carrying a stock at Beacon, N. Y., which would be held for shipment to New Egland points.

Pig Iron Prices

Per Gross ton

Bessemer, valley furnace	$17.50
Bessemer, del., Pittsburgh	19.26
Basic, valley furnace	16.00 to 16.50
Basic, del., Pittsburgh	18.13 to 18.26
Basic, Buffalo furnace	17.00
Basic, del., eastern Pa.	19.25 to 20.25
Malleable, valley furnace	17.25
Malleable, del. Pittsburgh	19.01
Malleable, del. Cleveland	18.50
Malleable, Chicago furnace	18.50
Malleable, Buffalo furnace	17.50
Malleable, del. eastern Pa.	20.00 to 21.00
No. 1 foundry, Chicago furnace	19.00
No. 1X, eastern del., Phila.	21.76
No. 1X, Buffalo furnace	18.50
No. 2 foundry, valley furnace	17.25
No. 2 foundry, del., Pittsburgh	19.01
No. 2 fdy., Everett, Mass., fur.	19.00 to 21.00
No. 2 foundry, Buffalo furnace	17.00
No. 2, foundry, Chicago furnace	18.50
No. 2 foundry, Granite City	19.00 to 19.50
No. 2 foundry, Ironton furnace	19.00
No. 2 foundry, del. Cleveland	18.50
No. 2 foundry, del. Phila.	20.76
No. 2 Virginia furnace	20.00 to 20.50
No. 2 foundry, N. J., tidewater	19.78 to 21.76
No. 2 foundry, east N. Y. fur.	18.00
No. 2 Alabama, Birmingham	16.00
No. 2 Alabama, del. Cincinnati	19.69
No. 2 Tenn., Birmingham base	16.00
No. 2 Tenn., del., Cincinnati	19.69
No. 2 Alabama, del. Chicago	22.01
No. 2 Ala., del. Chicago, river-rail	20.18
No. 2 Alabama, del. Cleveland	22.01
No. 2 Alabama, del. St. Louis	20.42
No. 2X, east. N. J., tidewater	20.28 to 21.26
No. 2X, eastern, del. Phila.	21.26
No. 2X, foundry, Buffalo furnace	17.50
No. 2X, eastern, del. Boston	23.15 to 23.65
No. 2X, Virginia furnace	20.50 to 21.00
Gray forge, val., del., Pittsburgh	18.76
Low phos., standard, valley	27.00
Low phos., standard, Phila.	24.76 to 27.29
Low phos. copper bearing fur.	23.00 to 23.50
Charcoal, Birmingham	28.00
Charcoal, Superior, del., Chicago	27.04

Silvery iron, Jackson county (Ohio) furnace in per cents: 5—$22 6—$23; 7—$24; 8—$25; 9—$26; 10—$28; 11—$30; 12—$32; 13—$34.

Bessemer ferrosilicon, Jackson county (Ohio) furnace, in per cents: 10—$30; 11—$32; 12—$24; 13—$36; 14—$38; 15—$40.50; 16—$43.

Buffalo, May 1.—Small inquiries for pig iron are fairly numerous, but there is only one for 1000 tons. Increased competition is noted by Buffalo furnaces in certain fields and close to $16, base, Buffalo, must be done to book business. The Buffalo district base is firm at $17 for foundry and $17.50 for malleable.

Cleveland, May 1.—April pig iron shipments by furnace interests represented at Cleveland exceeded those of March, in the aggregate, despite the fact April is a shorter month than March. In each of the first four months this year there has been an increase in shipments over the preceding month. The melt for motorcar manufacture has been holding up particularly well. Current business is of a miscellaneous, fill-in character, mainly for prompt shipments, as the majority of buyers are covered for second quarter. A few orders have been taken for third quarter. Sales in the past week amounted in all to 22,000 tons. Prices are steady, lake furnaces quoting $16.75 to $17, base, although $16.50 is reported in some instances in competitive territory. The price for delivery in Cleveland continues $18, base, furnace.

Chicago, May 1.—April sales of pig iron in this district exceeded the March volume by a slight margin. Shipments were only slightly behind the high rate of March. Active spot buying continues and is unusually heavy for the early part of the quarter. The bulk of sales is for nearby delivery, but additional orders have been placed for shipment in June and July. Five of the nine merchant stacks of the district are operating, but it is probable that one of the Federal merchant furnaces at South Chicago will be blown out in a short time. Stocks are well balanced. The base price of $18.50, Chicago furnace, continues to hold for nearby and future sales. Sales of boat iron thus far are considerably behind last year.

(*Concluded on Page* 1173)

Coke

Connellsville Beehive and Eastern By-Product Producers Competing for Small Tonnages

COMPETITION between eastern by-product coke makers and Connellsville beehive interests still is keen, as shown by negotiations for moderate size tonnages for gas producers. Spot sales of beehive 48-hour fuel are noted at $2.50. Furnaces are not in the market, while demand for foundry coke is not as strong as a few weeks ago.

Pittsburgh, May 1.—Beehive coke is enlivened by negotiations by gas producers for one or two and up to four or five cars weekly. One beehive producer working on three different propositions closed at $3 for delivery over a year. This prospective business makes up in some way for present lack of blast furnace buying. Blast furnaces are receiving shipments on contracts billed at $2.75 or slightly less. Beehive coke producers are fearful that keenly competitive figures quoted by eastern by-product interests may take the business that is pending, the same as they took larger contracts placed several weeks ago. Spot sales of beehive 48-hour coke are noted at $2.50 to $2.75. Foundry coke sales are scarce. Occasional sales of hand-drawn fuel are noted at $4 to $4.75, showing some makers are able to receive $1.50 or $2 differential over the furnace grade. Some push-oven coke is offered at $3.75 and less. Premium brands still sell at $5.10.

The coal market is dull except for activity in gas slack, consumption being maintained with production at low ebb. Prices on gas slack are up $1.25 to $1.35, and on steam coal they are up $1.10 to $1.15. The coal trade's eyes are on the conference in Cincinnati Thursday which is expected to develop some compromise of the freight rate reduction from northern railroads, permitting Pittsburgh and Connellsville district operators to participate in lake coal business this year.

Production of coke in the Connellsville region in the week ended April 21 was 59,460 tons, compared with 60,850 tons the preceding week, according to the *Connellsville Courier*.

Boston, May 1.—There will be no change in coke prices this month, the foundry grade holding at $11, delivered. Demand has not changed in the past week.

Buffalo, May 1.—Domestic coke demand has been exceptionally good, partly overcoming the rather small inquiry for foundry grades. Prices are unchanged.

New York, May 1.—Foundry coke demand is fair. Prices are unchanged. By-product foundry coke is $8.30, ovens, in northern New Jersey, equivalent to $9 to $9.40, delivered at Newark. The premium brands of beehive foundry coke continue $5 to $5.10, Latrobe, Pa., equivalent to $8.71 to $8.81, delivered at Newark. By-product foundry coke delivered in New England continues $11 at most consuming points.

Cincinnati, May 1.—Foundry coke specifications for May delivery are light. New orders also are small. Prices are steady.

Detroit, May 1.—By-product foundry coke here continues unchanged for May at $9, ovens. This price feels the competition of Terre Haute and Indianapolis producers in western Michigan.

Chicago, May 1.—Shipments of by-product foundry coke in April approximated the March shipments. Quotations are steady at $9, ovens, and $9.50 for local delivery.

St. Louis, May 1.—Demand for metallurgical coke continues fair, though slightly less active than early in April. Melters are well covered and are awaiting developments before increasing their commitments. Prices are steady.

Birmingham, Ala., May 1.—Coke production is steady. The foundry grade is $5, base. Shipments are about equal to the average of the past four months.

Coke Prices

Beehive Ovens

Prices per Net Ton

Connellsville furnace	$2.50 to 2.75
Connellsville foundry	3.60 to 4.25
New River foundry	7.00 to 8.00
New River furnace	6.00
Wise county, foundry	5.00 to 5.50
Wise county furnace	4.50 to 5.00
Alabama foundry	5.00

By-Product Foundry

Newark, N. J., del.	9.00 to 9.40
Chicago, ovens	9.00
New England, del.	11.00
St. Louis	9.00
Birmingham	5.00
Indianapolis, del.	8.75
Ashland, Ky.	7.00
Portsmouth, O.	7.00
Detroit, ovens	9.00
Buffalo, ovens	8.50 and 9.00

Ferroalloys

Specifications Continue Active—Several Spiegeleisen Contracts Renewed

New York, May 1.—Specifications continue brisk for first half ferromanganese. Some small new sales are noted. The price continues $100, duty paid, tidewater. Specifications against spiegeleisen contracts also are coming in at a good rate. Several spiegeleisen contracts have been renewed. Carloads for spot shipment continue to bring $32, furnace, for 19 to 21 per cent.

Special ferroalloys are moving well. Prices are unchanged. Tungsten ore is strong, generally about 10.62½c a short ton unit, duty paid. Dealers expect the movement for a higher tariff to become effective. Shipments of nickel to steel mills have been large the past month.

Pittsburgh, May 1.—Shipments of ferroalloys against contracts are holding their own. April tonnage figures for ferromanganese are expected to aggregate slightly heavier than March. Spot market activity is extremely low since everybody is covered by requirement contracts at $100. As noted last week, a spiegeleisen producer is accepting contracts for that period at unchanged prices, $30 to $32, and is taking care of its regular customers. Shipments in ferrosilicon so far this quarter are keeping up to the first-quarter rate. The movement of ferrochrome, ferrophosphorus, ferrotungsten, ferrovanadium, etc., is fair, with prices unchanged.

Chicago, May 1.—Shipments of ferrosilicon, ferrochrome and ferromanganese are above those of last year.

Chicago Ingot Output Is Still 95 Per Cent

Chicago, May 1.—Steelmaking operations are slightly over 95 per cent. Illinois Steel Co. has 10 of its 12 stacks operating at Gary, 9 at South Chicago, and 1 at Joliet. Inland Steel Co. has all its 4 furnaces in blast, Wisconsin Steel Co. its 3, and Youngstown Sheet & Tube Co. its 2 steelworks stacks at Indiana Harbor in blast. Track fastenings operations are practically at capacity, and rail mill activity continues at about 90 per cent. Sheet mill operations dropped off slightly, and now are about 70 to 75 per cent.

Wire was machine drawn in England about 1565.

Ferroalloy Prices

Ferromanganese, 78 to 82 per cent, tidewater, duty paid	$100.00
Ferromanganese, del. Pittsburgh	$104.79
Spiegeleisen, 19 to 21 per cent domestic furnace	32.00
*Ferrosilicon, 50 per cent, freight allowed, carloads	83.50
*Do., less carload	88.50
Do., 75 per cent	130.00 to 150.00
Ferrochrome, 66-70 chromium, 4-6 carbon, cts. per lb. con., del.	11.00
Do., for spot delivery	11.50
Ferrotungsten, stand., lb. cont.	93.00
Ferrovanadium, 30-40 per cent, per lb., contained, on analysis	3.15 to 3.65
Ferro-carbon-titanium, carload, producers plant, net ton	200.00
Ferrophosphorus, per ton, carload, 17 to 19 per cent, Rockdale, Tenn., basis (18 per cent)	91.00
Ferrophosphorus, electrolytic, per ton, carload, 23-25% f.o.b. Anniston, Ala. (24 per cent)	122.50

*These prices contract; spot $5 higher.

Scrap

Dealer Buying to Fill Contracts Supports Prices—Market Shows Little Vigor—Lake Shipments On

STRONGER DEMAND and slightly higher prices are apparent in iron and steel scrap, largely the result of dealers covering on contracts, which appears to account for a fairly heavy total tonnage. Melters are not actively in the market. Some Chicago scrap is going by Lake to Buffalo.

Chicago, May 1.—Iron and steel scrap is a shade stronger. This is due in part to actual scarcity in some lines, owing to heavy shipments of the past eight to ten weeks, and the fact that dealers have been covering actively for some time on a large number of orders. A steelworks consumer has purchased 20,000 tons of heavy melting steel at $13.25 and $13.50. This has added 50 cents to the melting steel market, and a few other lines have advanced sympathetically. It is understood one or two cargoes of scrap are being bought for shipment from Chicago to the Buffalo district.

New York, May 1.—Despite pronounced dullness, scrap prices are holding unchanged, and largely nominal. Possibly one of the weakest items is heavy breakable cast, for which demand is as dull as at any time in weeks. Included in scattered consuming demand is a moderate tonnage of turnings for Phoenixville, Pa., for which dealers are paying $10.25, delivered. The government will close bids May 21 on approximately 7000 tons of relaying rails at the Hog Island shipyard, near Philadelphia.

Boston, May 1.—Iron and steel scrap is less active than a fortnight ago. Business was scattered carlots, with much of the tonnage for ship-

Iron and Steel Scrap Prices

Corrected to Tuesday noon. Delivered to Consumers.

Steel Works Scrap

HEAVY MELTING STEEL

Birmingham	10.50 to 10.75
Boston, dealers	9.25 to 9.50
Buffalo, No. 1	14.25 to 14.75
Buffalo, No. 2	12.75 to 13.25
Chicago	13.00 to 13.50
Cincinnati, deal.	11.25 to 11.75
Cleveland, No. 1	13.25 to 13.75
Cleveland, No. 2	12.50 to 13.00
Detroit, No. 1	11.00 to 11.25
Eastern, Pa.	13.50 to 14.00
Eastern Pa., No. 2	10.50 to 11.50
Bethlehem delivery	13.50 to 14.00
N. Y., deal., R. R.	10.00 to 10.85
N. Y., deal., R. R. yd.	7.00
Pittsburgh, No. 1	15.00 to 16.00
St. Louis	11.25 to 11.75
Valleys, No. 1	14.25 to 14.75

COMPRESSED SHEETS

Buffalo	12.75 to 13.25
Chicago	10.75 to 11.25
Cleveland	12.50 to 12.75
Detroit	10.75 to 11.00
Pittsburgh	15.00 to 15.50
Valleys	14.00 to 14.50

BUNDLED SHEETS

Buffalo	10.00 to 10.50
Cincinnati, deal.	9.50 to 10.00
Cleveland	11.50 to 12.00
Eastern Pa.	10.50
Pittsburgh	14.00 to 14.50
St. Louis	7.75 to 8.25

SHEET CLIPPINGS, LOOSE

Chicago	7.50 to 8.00
Cincinnati	8.75 to 9.25
Detroit	7.00 to 7.50
St. Louis	8.50 to 9.00

STEEL RAILS, SHORT

Birmingham	11.50 to 12.00
Boston	8.50 to 9.00
Buffalo	15.75 to 16.25
Chicago	15.75 to 16.25
Cincinnati, deal.	16.00 to 16.50
Detroit	11.00 to 11.50
St. Louis	15.50 to 16.00

STOVE PLATE

Birmingham	13.00 to 14.00
Boston, consumers	10.00
Buffalo	12.75 to 13.25
Chicago, net	11.50 to 12.00
Cinn., deal., net	8.50 to 9.00
Cleveland	12.00 to 12.50
Detroit, net	10.75 to 11.25
Eastern Pa.	12.00
N. Y., deal., mill.	7.50 to 8.00
Pittsburgh	12.50 to 12.75
St. Louis	12.00 to 12.50

SHOVELING STEEL

Chicago	13.00 to 13.50
Pittsburgh	10.50 to 11.00
St. Louis	11.25 to 11.75

KNUCKLES, COUPLERS SPRINGS

Buffalo	15.50 to 16.00
Chicago	14.25 to 14.75
Eastern Pa.	16.00 to 16.50
Pittsburgh	16.50 to 17.00
St. Louis	12.75 to 13.25

LOW PHOSPHORUS

Buffalo, billet and bloom crops	16.75 to 17.25
Cincinnati, deal.	12.25 to 13.25
Eastern Pa.	17.50 to 18.50
Pitts. billet and bloom crops	18.50 to 19.00
Cleve. billet and bloom crops	17.00 to 17.50

FROGS, SWITCHES, GUARDS

Chicago	13.50 to 14.00
St. Louis	12.00 to 12.50

ANGLE BARS—STEEL

Buffalo	14.00 to 14.50
Chicago	14.50 to 15.00
St. Louis	11.50 to 12.00

Iron Mill Scrap

RAILROAD WROUGHT

Birmingham	11.00 to 12.00
Boston, dealers	9.50 to 10.00
Buffalo, No. 1	12.25 to 12.75
Buffalo, No. 2	14.25 to 14.75
Chicago, No. 1	12.90 to 13.45
Chicago, No. 2	13.00 to 13.50
Cinn., No. 1 deal.	10.50 to 11.00
Eastern Pa.	15.00 to 15.50
N. Y., No. 1 deal.	11.00 to 11.50
Pittsburgh, No. 1	11.00 to 11.50
Pittsburgh, No. 2	15.00 to 16.00
St. Louis, No. 1	9.50 to 10.00
St. Louis, No. 2	11.25 to 13.75

WROUGHT PIPE

Boston, dealers	7.75 to 8.25
Eastern Pa.	12.50
Buffalo	12.00 to 12.50
New York, deal.	8.00 to 8.50

YARD WROUGHT

Boston	8.00 to 8.50
Eastern Pa.	14.50 to 15.00

BUSHELING

Buffalo	12.75 to 13.25
Chicago, No. 1	10.50 to 11.00
Chicago, No. 2	8.50 to 9.00
Cinn., No. 1 deal.	10.50 to 11.00
Cinn., No. 2	6.00 to 6.50
Cleveland, No. 2	9.25 to 9.50
Pittsburgh, No. 1	12.00 to 12.50
St. Louis, No. 1	9.50 to 10.00
Detroit, mixed	7.25 to 7.50

MACHINE SHOP TURNINGS

Birmingham	8.00 to 9.00
Poston	5.50 to 5.75
Buffalo	9.00 to 9.50
Chicago	7.00 to 7.50
Cincinnati, deal.	7.50 to 8.00
Cleveland	7.25 to 7.50
Detroit	6.00 to 6.50
Eastern Pa.	10.00 to 10.50
New York, deal.	6.25 to 7.35
Pittsburgh	10.00 to 10.50
St. Louis	7.00 to 7.50

MIXED BORINGS, TURNINGS
For blast furnace use

Boston, dealers	5.75 to 6.00
Buffalo	9.50 to 10.00
Cincinnati, deal.	8.25 to 8.75
Cleveland	9.25 to 9.50
Detroit	6.75 to 7.00
Eastern Pa.	10.50 to 11.00
New York, deal.	6.75 to 7.35
Pittsburgh	10.50 to 11.00

CAST IRON BORINGS

Birmingham, chem.	13.00 to 13.50
Birmingham, plain	8.00 to 9.00
Boston, chem.	9.50 to 10.00
Boston, dealers	6.00 to 6.50
Buffalo	9.75 to 10.25
Chicago	9.50 to 9.75
Cincinnati, deal.	8.25 to 8.75
Cleveland	9.25 to 9.50
Detroit	6.75 to 7.00
Eastern Pa.	10.50 to 11.00
Eastern Pa., chem.	14.50 to 15.00
New York, deal.	6.75 to 7.35
Pittsburgh	10.75 to 11.25
St. Louis	8.75 to 9.25
Valleys	13.50

PIPES AND FLUES

Chicago, net	8.50 to 9.00
Cincinnati, deal.	7.50 to 8.00
St. Louis	9.00 to 9.50

RAILROAD GRATE BARS

Buffalo	11.50 to 12.00
Chicago, net	11.50 to 12.00
Cleveland	12.00 to 12.50
Eastern Pa.	11.50 to 12.00
New York, deal.	8.00 to 8.50
St. Louis	11.00 to 11.50

FORGE FLASHINGS

Boston, deal.	6.75 to 7.25
Buffalo	12.00 to 12.50
Chicago	9.50 to 10.00
Cleve., over 10 in.	12.25 to 12.50
Detroit	9.50 to 10.00
Pittsburgh	13.00 to 13.50

FORGE SCRAP

Boston, deal.	6.00 to 6.50
Chicago	15.50 to 16.00
Eastern Pa.	11.00 to 11.50

ARCH BARS AND TRANSOMS

Chicago, net	18.50 to 19.00
St. Louis	19.50 to 20.00

Iron, Steel Works Scrap

AXLE TURNINGS

Boston, deal.	6.75 to 7.00
Buffalo	12.50 to 13.00
Chicago	10.25 to 10.75
Cleveland	12.00 to 12.25
Eastern Pa.	12.00 to 12.50
Pittsburgh	13.00 to 13.50
St. Louis	9.50 to 10.00

STEEL CAR AXLES

Birmingham	16.00 to 17.00
Boston, ship. point	15.50 to 16.00
Buffalo	16.75 to 17.25
Chicago	17.65 to 18.20
Cleveland	16.00 to 16.50
Eastern Pa.	20.00 to 21.00
Pittsburgh	18.50 to 19.00
St. Louis	18.00 to 18.50

SHAFTING

Boston, ship. point	13.00 to 13.50
Chicago	17.35 to 17.90
Eastern Pa.	17.50 to 18.00
New York, deal.	14.00 to 14.50
St. Louis	16.50 to 17.00

Iron Foundry Scrap

CAR WHEELS

Birmingham, iron	14.00 to 15.00
Boston, con.	14.00 to 14.50
Buffalo, iron	13.25 to 13.75
Buffalo, steel	15.50 to 16.00
Chicago, iron	13.50 to 14.00
Chi., rolled steel	15.25 to 15.75
Cincinnati	12.25 to 12.75
Eastern Pa.	16.00
N. Y., iron, deal.	11.50 to 12.00
Pittsburgh, iron	14.50 to 15.00
Pittsburgh, steel	16.50 to 17.00
St. Louis, iron	13.00 to 13.50
St. Louis, steel	13.25 to 13.75

No. 1 CAST SCRAP

Birmingham, cup.	14.00 to 14.50
Boston	15.00 to 15.25
Buffalo	14.50 to 15.00
Chicago, machiny.	15.65 to 16.25
Chicago, railroad.	14.30 to 14.85
Chicago, agri.	14.00 to 14.55
Cincinnati, mach. cupola, net deal.	14.50 to 15.00
Cleveland, cupola	16.50 to 17.00
Detroit, net	12.25 to 12.75
Eastern Pa. cupola	16.00 to 16.50
N. Y., cup., deal.	13.00 to 13.50
Pittsburgh, cupola	14.50 to 15.00
San Fran., del.	20.00 to 21.00
Seattle	15.00 to 15.25
St. Louis, railroad	13.00 to 13.50
St. Louis, agri.	13.00 to 13.50
St. Louis, machy.	13.00 to 13.50
Valleys	16.50 to 17.00

HEAVY CAST

Boston	10.50 to 11.00
Buffalo, breakable	11.50 to 12.00
Cleve., breakable	12.25 to 12.50
Detroit, auto., net	20.00 to 21.00
Detroit mach., net	12.50 to 13.00
Eastern Pa.	15.50 to 16.00
New York, deal.	11.50 to 12.00
Pittsburgh	12.50 to 13.00

MALLEABLE

Boston, railroad	13.00 to 13.50
Buffalo	15.00 to 15.50
Chicago, agri.	11.75 to 12.25
Chicago, railroad	12.75 to 13.00
Cinn., R. R., deal.	12.25 to 12.75
Cinn., agri., deal.	12.00 to 12.50
Cleveland, agri.	15.00 to 15.50
Cleveland, rail.	15.50 to 16.00
Detroit, auto	14.50 to 15.00
Pittsburgh, rail.	15.00 to 15.50
St. Louis, agri.	11.50 to 12.00
St. Louis, rail.	11.50 to 12.00

Miscellaneous Scrap

RAILS FOR ROLLING
5 feet and over

Birmingham	13.00 to 13.50
Boston, dealers	9.75 to 10.00
Buffalo	14.50 to 15.00
Chicago	14.00 to 14.50
Eastern Pa.	14.75 to 15.25
New York	11.00 to 11.50
Pittsburgh district	16.50 to 17.00
St. Louis	13.00 to 13.50

LOCOMOTIVE TIRES

Chicago, No. 1	14.00 to 14.50
Chicago, cut	16.00 to 16.50
St. Louis, No. 1	12.00 to 12.50

LOW PHOS. PUNCHINGS

Chicago	14.00 to 14.50
Pittsburgh	16.50 to 17.00

ment to Danzig. Machinery textile has moved at $14, delivered to New England foundries. No. 1 machinery showed the firmest trend of any of the scrap lines, with the bulk of sales as high as $15 to $15.25.

Buffalo, May 1.—Some minor buying of No. 1 heavy melting steel has taken place at $14.50 to $14.75, with some No. 2 being sold at the usual differential. Dealers are buying for shipment on their large volume of unfilled orders but otherwise the market is quiet and prices unchanged.

Pittsburgh, May 1.—The entire scrap market lacks snap and vigor. This is the week the railroads close bids and buyers are staying out. Dealers with shorts to cover at Weirton, W. Va., are still offering $14.50 on heavy melting steel. The actual market here on that grade, depending upon the kind of scrap and point of delivery, is quoted at $15 to $16, no consumers as yet having paid $16.50.

Philadelphia, May 1.—Further soft spots have appeared in the iron and steel scrap market. On round lots the past week steel axles have sold $1 under previous levels, at $20 to $21. A fair tonnage of rails for rolling has moved at $14.75 to $15.25.

Cleveland, May 1.—Heavy melting steel is weaker, offerings being in excess. No. 1 is quoted at $13.25 to $13.75, a decrease of 25 cents a ton, while No. 2 is 50 cents lower at $12.50 to $13.

Detroit, May 1.—Iron and steel scrap presents a checkered situation. In some grades, notably No. 1 melting steel, machine shop turnings, No. 1 machinery cast and stove plate, prices are slightly firmer. Dealers, however, are more willing to sell, feeling that the market has had its spring rise. Bundles have been bid up to $11. Scrap lists of automotive interests are contracting, Chevrolet offers 100 cars of borings, turnings and hydraulic compressed sheets for May shipment or about one-third under April. The Buick May list is half that of April. Water shipments of scrap are being made to Buffalo as well as to Cleveland.

Cincinnati, May 1.—Movement in scrap is about as it was last week except that foundry demand has slackened considerably since April 20. Some price changes have been made by leading companies handling all varieties of scrap, reducing 25 cents.

St. Louis, May 1.—A somewhat firmer tone exists in iron and steel scrap. Certain consumers are showing more interest, but the chief factor is increased activity by dealers. Greatest strength is displayed in steel grades and miscellaneous railroad scrap. Heavy melting and shoveling steel are up fractionally to $11.27 to $11.75, which contrasts with the recent low of $10.75. More mixed scrap is being bought at the top of the $9 to $9.50 spread, and for the first time in a long while some tonnage is being laid down in yards.

Birmingham, Ala., May 1.—Better feeling is noted in scrap as several foundries are buying in small lots and asking early delivery. Quotations are unchanged but firmer.

Semifinished

Mill Operations and Shipments Continue at High Level—New Business of Smaller Proportions

MAKERS of semifinished steel have good backlogs and are operating at a high rate, some of them at 100 per cent. Specifications continue fairly active. Current new business, however, is of small, routine character. April shipments generally equalled or exceeded those of March. Shipments of sheet bars now appear to be slowing up, but demand for tin bars is well maintained.

SEMIFINISHED STEEL PRICES, PAGE 1158

Pittsburgh, May 1.—While specifications for billets and slabs keep up in a fairly steady way, little is being done in the prompt market. Most contracts are between users and their regular sources of supply. While sheet bar shipments are somewhat lower, tin bar shipments are well maintained. Forging billets occasionally are sold in single carloads at $38 to $39, and specifications against contracts at the minimum level are fairly active from some consuming lines but slow from the oil-well tool industry. Specifications were slightly heavier in April than in March. Wire rod users still are utilizing cheaper material than that for which they have contracted at $44 over the second quarter. Skelp is quiet at 1.85c.

Youngstown, O., May 1.—Shipments of sheet bars to consuming mills are going forward steadily, but new sales are for only small tonnages for immediate consumption. Sheet bars are $34, Youngstown, and billets $33.

Cleveland, May 1.—Specifications for sheet bars, billets and slabs are fair, but new business is quiet. The leading merchant interest here continues to operate at 100 per cent. Sheet bars, billets and slabs are $33, base, Cleveland or Youngstown.

Chicago, May 1.—Sheet bars are holding at $35, Chicago, despite a moderate falling off in demand from some lines. Automotive demand continues heavy. Specifications are heavy for other semifinished material. Forging billets are active and are steady in price at $39 to $43. Billets, 4 x 4-inch base, are quoted $34, Chicago.

Bolts, Nuts, Rivets

Specifications in Fair Volume and Prices Firm

NUT AND BOLT PRICES, PAGE 1158

Chicago, May 1.—April specifications of bolts, nuts and rivets held their own with March. The decline in farm implement specifications has not been general and is confined mainly to tillage tool operations. Tractor works are keeping up maximum operations. Automotive lines form an important feature of current demand. Prices are steady. Spot quotations for bolts are 60 to 60 and 5 off, and in a few cases 60 and 10 off has been obtained for odd-lot orders. Sellers are obtaining 70 off for most current spot business on small rivets.

Pittsburgh, May 1.—April tonnage in nuts, bolts and rivets is somewhat below March in the experience of a few makers here. The decline was slight and specifications continue fair so that some producers expect May to make up for April. Some larger users of nuts and bolts buy in carloads but most orders are for much smaller amounts. About 60 per cent represents the operating average. Prices are unchanged and according to leading producers here are entirely firm at 70 off on nuts and bolts, 70 and 10 off on small rivets, and 2.90c on regular rivets.

Cleveland, May 1.—Bolt and nut sales in April approximated the March business. Rivet specifications were steadier but slightly below March, when lower prices provided a buying incentive. Operations are about 65 per cent of capacity, but rivet production is at a lower rate. Bolts and nuts are quoted at 70 off, with large rivets commanding 2.90c.

Iron Ore

Market Is Firm—Some Tonnages Under Negotiation

IRON ORE PRICES, PAGE 1158

Cleveland, May 1.—Some tonnages of Lake Superior iron ore still are under negotiation, but the aggregate is not large, most of the open market business having been placed. One or two merchant furnaces have not yet entered the market. Several steel companies recently made substantial purchases. The market is firm and fairly active. Lake shipping is not likely to start before May 8 or 9, owing to ice conditions.

Pickands, Mather & Co. have acquired the Sagamore mine, Cuyuna range, from the Sagamore Iron Co., which was controlled by John A. Savage & Co. The Sagamore is a large open pit manganiferous property.

The Market Section

Bars

Chicago Mills See Upturn in Demand, While Pittsburgh Mills Experience Slackening

DIFFERENCE of experience in demand for soft steel bars is noticeable between East and West. At Chicago, mills are unable to deliver under four to six weeks on most sections, while at Pittsburgh immediate delivery is offered. Prices are steady, with premiums on less desirable tonnages. Agricultural implement makers are keeping up activity. Bar iron demand is holding well.

BAR PRICES, PAGE 1157

Chicago, May 1.—Sales of bar products largely for direct needs of fabricators with orders to fill, made a definite upturn during the week, and specifications also exceeded the preceding week. Sales and specifications are close to the rate of shipment. Shipments are in line with production, bar mills being near capacity operations. Bar products buyers usually order material for specific orders at hand. No sign of weakening appears in general demand for steel from farm implement makers, despite a decline in some lines of tillage tool output. Cold bar finishers, which are serving the automotive trade largely, are taking maximum steel requirements. Deliveries of bar mill products remain lengthened to four to six weeks on most sizes, although the more usual sizes are being fitted into rolling schedules for prompt shipment. Due to the absence of contract buying, sales and shipping orders are more nearly on the same level.

Unless eastern competition at lower prices develops, mills express confidence that 2.00c, Chicago, will be held for some time. New buying is on that basis. Buyers are inclined to bargain for 1.95c when attractive individual tonnages are offered.

Bar iron is more active, with increased sales to the railroads. The price is reported firm at 2.00c, Chicago.

Pittsburgh, May 1.—Merchant steel bar specifying rates have fallen off somewhat, April tonnage being a trifle below that of March in most cases. This drop is 5 to 10 per cent. Prompt deliveries are asked and mills are in such a favorable position as regards stocks that they can comply in practically every instance. Some cases still are noted where 1.90c is obtained on single carloads, particularly when numerous sizes, kinds and grades are involved. Practically all sales, however, are now at 1.85c. Some customers have material on hand to absorb which cost them below that figure.

Refined iron bars are going out in their usual way. Small orders rule. Most customers all are under contract but a few purchase in the spot market, where prices start at 2.75c.

Detroit, May 1.—Specifications received thus far for May shipment of mild steel bars indicate little change in the aggregate from April. The slack in some automotive consumption is being taken up by expansion by other makers. Because the Ford Motor Co. is shipping out some of its accumulation of bars, the distribution of Ford parts orders has not resulted in a commensurate demand for bar mill products. Most makers ask 1.85c, Pittsburgh, but one important maker is quoting 1.90c. In a few spots the Cleveland mill price and the imminent opening of lake navigation disturbs the market.

Permanent magnets frequently are made of steel containing 1 to 1½ per cent carbon and 3 to 4 per cent molybdenum.

Sheet and Tin Plate Mill Wages Unchanged

Youngstown, O., May 1.—Sheet and tin plate mill wage rates will continue in May and June on the same level that has prevailed since Jan. 1.

The average sales price of No. 26, 27 and 28 gage black sheets reported by mills having contracts with the Amalgamated Association of Iron, Steel and Tin Workers was 3.00c in March and April, the same as in the November-December and January-February periods. Further camparisons follow:

March-April, 1928	3.00c		unchanged
Jan.-Feb.	3.00c		unchanged
Nov.-Dec.	3.00c	—3	per cent
Sept.-Oct.	3.10c	+3	per cent
July-Aug.	3.00c		unchanged
May-June	3.00c		unchanged
March-April, 1927	3.00c	—3	per cent
Jan.-Feb.	3.10c	—4½	per cent
Nov.-Dec.	3.25c		unchanged
Sept.-Oct.	3.25c		unchanged
July-Aug.	3.25c		unchanged
May-June	3.25c		unchanged
March-April	3.25c	+1½	per cent
Jan.-Feb., 1926	3.20c	+3	per cent

Exports of tin plate in 1927 from United States to Argentina totaled 33,415 tons.

Plates

Market Activity Shows Signs of Diminishing — Chicago Mills Busy at 90 Per Cent

WHILE miscellaneous manufacturing requirements for plates is compensating for lack of tank and other large tonnages, enabling mills in the Chicago district to continue operating at 90 per cent, the market in general shows less activity than recently. Eastern demand is below the average for April. Most of the business now being placed is at 1.85c, base, Pittsburgh.

PLATE PRICES, PAGE 1157

Pittsburgh, May 1.—Specifications on plate contracts, while slowing up slightly, continue to represent fairly large aggregates. Users have started to take in plates on 1.85c contracts. Some small sales are made occasionally at 1.90c, and makers indicate that is the price contemplated for third quarter. Each of the five barges on which bids were to be opened today in Memphis for the federal engineers have plate walls all around the four sides, and hence are slightly heavier than the usual 120-foot barge. Several industrial companies, including the Sharpsville Furnace Co., are expected to enter the market.

New York, May 1.—About 1300 tons of plates will be required for a pipe line in the Bronx on which the department of water of this city is opening bids today. The project includes 2875 feet of 48-inch, 6450 feet of 36-inch and 350 feet of 20-inch pipe. Plate demand has dropped from the average of recent weeks. Prices for this district continue to range from 1.85c to 1.90c, base, Pittsburgh, and 2.00c to 2.05c, base, Coatesville.

Chicago, May 1.—Steady buying of miscellaneous plates for manufacturing lines compensates in part for the lack of tank tonnage. Less than 2000 tons of tank plates were closed during the week, and practically no oil tankage is on inquiry. Except for material moving to the Southwest for oil tank fabrication, 2.00c, Chicago, is named by local mills. Buyers seek to shade 2.00c when bargaining for important tonnages.

Philadelphia, May 1.—Baldwin Locomotive Works has booked ten additional locomotives for the Southern Pacific. These are unusually large and involve about 600 tons of plates.

CONTRACTS PLACED

3500 tons, six 250-foot car floats for Pennsylvania railroad, awarded American Brown Boveri Electric Corp.

600 tons, two 80,000-barrel tanks for American Oil Co., Baltimore, to Riter- Conley Co., in-

cluding 318 tons noted last week as awarded.
350 tons, tank work for plants at Bellingham, Port Townsend, Hoquiam and Omalaska, Wash., to Chicago Bridge & Iron Works.
300 tons, two barges, American Tar Products Co., Pittsburgh, to Jones & Laughlin Steel Corp.
200 tons, two barges, 126 x 26 x 6½ feet, for Basic Products Co., Kenova, W. Va., to Dravo Contracting Co.
150 tons, two 100 x 26 x 6½-foot barges, for United Gas Improvement Contracting Co., Philadelphia, to Dravo Contracting Co.
100 tons, standpipe, Bellingham, Wash., to Chicago Bridge & Iron Works.

CONTRACTS PENDING

4830 tons, Wildcat aqueduct, East Bay municipal utility district, Oakland, Calif.; Steel Tank & Pipe Co. low bidder.
3668 tons, Sequoia aqueduct, East Bay municipal utility district, Oakland, Calif.; Steel Tank & Pipe Co. low bidder.
115 tons, 48-inch riveted pipe for Tacoma, Wash.; bids in.

Iron, Steel Employment Gains in March

Washington, May 1.—Detailed figures just available through the bureau of labor statistics, department of labor, show that March employment in the iron and steel industry was higher than in February.

Reports were received by the bureau from 200 iron and steel mills, which gave the February employment as 258,060, increasing in March to 262,853, or 1.9 per cent. Payrolls in these mills increased from $8,225,173 in February to $8,394,777 in March, 2.1 per cent. At 164 structural ironworks February employment as 24,066 decreased in March to 23,860, or 0.9 per cent. The payrolls decreased from $717,258 in February to $714,183, or 0.4 per cent.

Reports from 151 machine tool plants gave the February employment as 28,522, increasing in March to 29,158, a gain of 2.2 per cent. The payrolls increased from $908,777 in February to $948,870 in March, 4.4 per cent.

Buys Neville Stack

Pittsburgh, May 1.—Sharpsville Furnace Co., owned and operated by interests allied with the Allen S. Davison Co., Pittsburgh, has purchased from the American Steel & Wire Co. the blast furnace stack on Neville Island, near Pittsburgh. This stack, not operated for three years, has an annual capacity of 160,000 tons. With the razing of the Clinton stack in Pittsburgh, this will be the only merchant stack here. By-product coke ovens will be built adjacent to the stack.

Locker Concerns Merge

Lyon Metallic Mfg. Co., Aurora, Ill., and Durand Steel Locker Co., Chicago Heights, Ill., have consolidated under the name of Lyon Metallic Products Inc., with capital of $5,000,000. Present sales volume is said to be more than $8,000,000 annually.

Pipe

Mills Active on Jobber Backlogs—Cast Buying Mostly Municipal Tonnages

PIPE mill operations continue to be confined largely to production on orders from jobbers. Line pipe activity in the past few weeks has been confined to prospects. Cast iron pipe buying has eased off in the Middle West but continues fairly heavy in the East. Long Beach, Calif., has closed on 8744 tons of cast pipe. Prices are maintaining a firmer tone.

PIPE PRICES, PAGES, 1158, 1198

Pittsburgh, May 1.—Backlogs of pipe business were extended somewhat, before and during the recent price advance, which consisted of the removal of a 5 per cent preferential discount to jobbers. Tonnage was freely offered by jobbers for shipment even after April 30 but makers confined their coverage to material which could be shipped in that month. They claim that little is being carried over. This activity mostly was confined to standard full weight merchant pipe. Other grades have not been so active, line pipe particularly not furnishing any thing spectacular. A number of gas and oil lines are still in the projected stage but some of these are slated to come through within the next few months or as soon as financing arrangements have been completed and other difficulties removed. Oil country goods orders are not showing any life.

New York, May 1.—Cast iron pipe prices are steady, notwithstanding only moderate demand. Strength appears to be derived from prospects of a more active market in May, usually one of the briskest months of the year. The local water department continues the most active municipal buyer, with an additional 3600 tons pending. A private inquiry for 3000 to 4000 tons is pending in this district.

Youngstown, O., May 1.—A gain in the demand for wrought pipe is reflected in the increased shipments for April compared with March. The increase in shipments reported by the two local pipemakers was more noticeable in the buttwelded branch, thus indicating it is going into building construction and therefore seasonal. Oil country goods continue to furnish a fair amount of business to local mills, although this week 13 units in the district are active out of a total of 20, against 15 last week.

Cleveland, May 1.—Tubular mills selling into this district have shipped most of the tonnage covered by jobbers before the price advance April 1. Some low-price protections on specific coverage remain to be entered on mill books. Demand is better than several weeks ago. Cast iron pipe buying in this territory is expected to improve as weather becomes more favorable to outdoor work.

Chicago, May 1.—Fresh projects for cast iron water pipe are not appearing to the extent that was indicated earlier this spring. Adverse weather is responsible largely for the slowness in spring buying. Shipments have been unusually heavy the past 30 to 40 days, but producers now have caught up with orders and most foundries are not booked ahead more than 15 days. Nothing definite has been heard about the possible purchase of 3000 tons of pipe by Milwaukee.

Birmingham, Ala., May 1.—Cast iron pipe production is being speeded up a little as spring business gets under way. Lettings recently call for considerable tonnage. Prices show no change from $30 to $31 on 6-inch and over sizes.

CONTRACTS PLACED

8744 tons, 4 to 30-inch centrifugal pipe, Long Beach, Calif., to United States Cast Iron Pipe & Foundry Co.
600 tons, 6, 8 and 12-inch pipe for Dearborn, Mich., to unstated maker.
210 tons, 6 and 8-inch class C, improvement of Willow street, San Diego, Calif., through Bert Noble, to unstated maker.
200 tons, 6 to 12-inch pipe for Whitefish Bay, Mich., awarded through contractor to unstated maker.
132 tons dipped and wrapped 4 and 6-inch pipe, Oak Harbor, Wash. improvement, to Crane Company.
127 tons, 6-inch class B, improvement of Washington street, Riverside, Calif., to unnamed interest.

CONTRACTS PENDING

3000 to 4000 tons, private company, New York, Metropolitan district; bids asked.
2795 tons, 42 to 48-inch straight water pipe, Milwaukee; United States Cast Iron Pipe & Foundry Co. low at $38.50; alternate bid, $39.50 if not awarded all contracts; J. B. Clow & Son, $40.50; 180 tons, 42 to 48-inch lugged straight pipe. United States company low at $48.50; alternate, $55; Clow & Son, $57.50; 103 tons of special castings, 24 to 48-inch, Bessemer Foundry & Machine Co., $136.50; United States company, $150; alternate, $160; Clow & Son, $170. The taking of alternate bids is a new development in pipe buying in Milwaukee.
2000 tons, 6, 8 and 12-inch cast pipe for department of water supply, gas and electricity, New York; bids May 12.
1000 tons, 20-inch cast pipe for department of water supply, gas and electricity, New York; general contractors' bids May 8.
600 tons, cast pipe for department of water supply, gas and electricity, New York; bids opened May 1.
500 tons, 6 and 8-inch pipe for Royal Oak, Mich.; bids received April 30, former bids having been rejected.
364 tons, 2 to 10-inch, class B or 150, Livingston,

Calif.; contract rescinded and new bids asked for May 14.
234 tons, 24-inch class B, Los Angeles; bids rejected.

Refractories

Demand Slumps But Larger Producers Are Holding Prices

REFRACTORIES PRICES, PAGE 1158

Pittsburgh, May 1.—With little or nothing in the way of new construction coming up just now in open hearths or blast furnaces, and with coke oven brick needs met for the time being, fire clay and silica brick producers are going through a period of extremely low demand. Even repair needs are at a minimum. Because the steelmaking rate is maintained so well it is expected that brick orders will be more plentiful in another month. April shipments of prominent makers were less than in March. Kiln operations average 50 per cent. Larger producers are making an effort to hold firmly to the quoted market levels but they recently have lost a number of orders to smaller companies. Pittsburgh Steel Co. has arranged for financing its by-product coke oven installation. The Sharpsville Furnace Co., which recently bought a blast furnace on Neville Island—which is in good shape as far as the lining is concerned—will probably not need brick until it installs by-product ovens.

Tin Plate

Market Outlook Is Favorable—Operations at 95 Per Cent

TIN PLATE PRICES, PAGE 1157

Pittsburgh, May 1.—All reports concerning prospective demand for tin plate continue favorable. Specifications on general line cans as well as packers' cans keep up steadily, and for that reason operations among the tin mills are favorable. The demand for cans for condensed and evaporated milk and cream is increasingly large, and from year to year exports of these products show an increase. American Sheet & Tin Plate Co. has an operating basis of 94 per cent this week. Several independents are on a 100 per cent basis. The general average is about 95 per cent. The $5.25 price applies except where certain small producers offer slight concessions.

Devotes Time to Foundry

Chicago, May 1.—David Evans, Chicago sales representative for Sloss-Sheffield Steel & Iron Co. for the past 27 years, has resigned to devote his time to the management of the Chicago Steel Foundry Co. of which he is president. Mr. Evans will be succeeded by Nicholas & Miller, 1418 McCormick building, Chicago.

Sheets

Specifications Moderate Slightly —Mill Operations Fairly Steady —Prices Still Irregular

DEMAND for sheets generally is slightly slower than in recent weeks, but specifications in some districts are holding up fairly well, and May shipments into the Detroit automobile district will approximate those of April. Valley mills are pressed for deliveries of autobody sheets. Mill operations do not show much change. Prices still are irregular.

SHEET PRICES, PAGE 1157

Pittsburgh, May 1.—While demand for all grades of sheets has been tapering off, lack of business is most noticeable among car builders and barrel and drum manufacturers. Consumption of electrical sheets keeps up fairly steady. Although the Ford Motor Co. and a few others continue to take large amounts of steel, some motorcar manufacturers are experiencing a lull. Sheet operations here average about 80 per cent, 81 per cent being maintained by American Sheet & Tin Plate Co. Prices show wide spreads in many instances, black being quoted from 2.70c to 2.90c. Users of galvanized sheets have not paid less than 3.60c, and from time to time 3.75c still is being paid for small quantities. Occasionally jobbers buy at 3.50c but add 10 cents as their commission. Occasional lots of blue annealed still go at 2.10c, but down to 1.95c has been done. Full finished sheets seem pegged at 4.00c.

Buffalo, May 1.—Reduced sheet prices are now in effect on most of the large orders being taken by Buffalo producers. Black sheet contracts are being entered at 2.80c to 2.85c, base, Pittsburgh, and large lots of automobile sheets are being purchased at 4.00c. Sheet mills are being operated at about 85 per cent.

New York, May 1.—Demand for sheets is slow and there is much competition for such business as is offering. Galvanized sheets are 3.60c to 3.65c, base, Pittsburgh. Black sheets usually are 2.75c, base, Pittsburgh, and occasionally 2.70c is done. Blue annealed sheets show weakness but 2.10c, base, Pittsburgh, is fairly firm.

Detroit, May 1.—May shipments of sheets into this district will approximate those of April, the slack of some users being taken up by increased demand from Ford and Ford parts contractors. Indications are that with June a letdown will be felt. On black sheets 2.75c, Pittsburgh, is the market and irregularities under this level are the exception. On blue annealed 1.95c is the general minimum, with reports that in instances this has been shaded $1. On autobody 4.00c, is the going market. Galvanized ranges from 3.65c up.

Youngstown, O., May 1.—Some of the uncertainty that was apparent last week in this district is passing, with the local sheet mills continuing to operate at about normal rates. Specifications have been fairly liberal, enabling independent units to operate at 76 per cent Monday, against 83 per cent a week ago. Autobody sheet makers are now working overtime, and may continue so for several weeks. Valley makers understand that recent competitive quotations below 2.70c made to manufacturers of auto parts applied to special grades carrying extras on which the base was shaved, but did not apply to plain common black sheets. The bulk of present day shipments of common sheets from the various valley units carry prices of 2.80c and 2.85c. Mill interests say the minimum today on that grade is 2.75c, but they are meeting each situation as it arises. The autobody price is 4.00c, blue annealed is 2.00c to 2.10c, and galvanized 3.65c to 3.70c, Pittsburgh.

Chicago, May 1.—Galvanized and black sheets are being shaded $2 and $3 a ton in the South, Southwest and east of the Chicago freight rate territory, due to competition by eastern mills. Blue annealed sheets are in much better position as a result of stronger demand, but competition of stripsheets is being felt for that grade. Mills have backlogs of two to three weeks on blue annealed but are operating on day-to-day orders in black and galvanized. The week opened with operations at about 70 per cent, but it was indicated some mills would be taken off in the Chicago area before the end of the week. Mill quotations are 2.85c to 3.00c for No. 24 black, 3.70c to 3.85c for No. 24 galvanized, and 2.15c to 2.20c for No. 10 blue annealed.

St. Louis, May 1.—While there has been a slight falling off in sheet specifications and new business as compared with early in April, demand continues on a fairly satisfactory basis.

Cleveland, May 1.—New business coming to sheet makers is almost totally lacking. An occasional carload is booked but heavy consumers are covered on contracts. Although the bottom of the local market on black sheets, 2.70c, Pittsburgh, is confined to barrel stock, 2.75c has become general. Blue annealed has weakened to 2.00c and galvanized to 3.65c, with both levels subjected to shading. Autobody is firm at 4.00c, but furniture stock reflects easiness in black sheets. Greater proportions of second quality furniture stock sheets are being sold at 3.70c, than first grade at 3.90c.

Structural Shapes

Demand Eases Off in New York District—Chicago Fabricators Expect Heavy Buying with Milwaukee Planning Large Program

APRIL closed with sales rapidly decreasing in the New York structural market. Bridge demand continues to supply much of the activity in the New York district. Large awards included a 5500-ton letting for Newark Bay, N. J. bridgework and a 3800-ton New York building.

Chicago district mills are receiving good specifications from carbuilders. Approximately $50,000,000 in building is contemplated for the Milwaukee territory in 1928. Featuring the definite work now being figured is 6000 tons for the new court house.

Prices on plain structural material are holding steady in open market sales with considerable tonnage still being taken out on low priced contract coverage.

STRUCTURAL SHAPE PRICES, PAGE 1157

Chicago, May 1.—Specifications from the carbuilding shops are an active support to the plain structural market in the West, as demand for building steel has eased off. The building outlook appears brighter in the Northwest, with the statement that about $50,000,000 in new building is being planned in the Milwaukee territory alone for the remainder of this year. Included in the prospective Milwaukee work is about 6000 tons for the new court house. Deliveries are several weeks deferred for some sizes. Buying is largely in one to several carload lots, for which the 2.00c, Chicago, price is named. Mills report no eastern competition at lower prices thus far.

Boston, May 1.—Awards were limited in the past week. While there is some figuring, prospects are not for any sizable tonnages to be awarded in the immediate future.

New York, May 1.—Structural demand is starting off the new month listlessly. A substantial tonnage is pending, but the past few days have seen little fresh inquiry and orders are coming through slowly. Bridge demand is being sustained fairly well. Prices on fabricated material continue weak.

Pittsburgh, May 1.—Fabricators still entertain a fairly large number of inquiries but lettings are scarce. Much work appears on the boards but little is reaching the closing stage. Mills are receiving a fairly large number of specifications from contract customers. Although the April rate dropped off a trifle as compared with March, the average for the month is practically the same as the monthly average for the first quarter. Plain material is firm at 1.85c to 1.90c, the latter figure still being obtained on small quantities.

Cleveland, May 1.—Inquiries for structural shapes during the past week were few and small. Several fabricators estimated total new inquiry as less than 250 tons. Awards were lacking in this district. Specifications against plain material contracts continue good from manufacturers but have slackened from fabricators. Plain material prices are steady at 1.85c, Pittsburgh.

Detroit, May 1.—About 3000 tons of structurals will be required for General Motors Corp. expansion at Saginaw and Bay City, Mich. Nearly 10,000 tons will be bought for the proposed Detroit Biltmore hotel and the adjacent Adcraft building, for which the financing is progressing. A little 1.80c, Pittsburgh, material still is being shipped here, but moderate lots are priced at 1.85c.

Awards Compared

	Tons
Awards this week	35,157
Awards last week	30,409
Awards two weeks ago	29,505
Awards this week in 1927	23,002
Average weekly awards, March	30,805
Average weekly awards, 1928	41,193
Total awards to date, 1927	653,858
Total awards to date, 1928	700,393

CONTRACTS PLACED

5500 tons, unit of Pennsylvania-Lehigh Valley railroad bridge across Newark Bay, N. J., to Bethlehem Steel Co.

4800 tons, Hudson river bridgework, New York, to McClintic-Marshall Co.

3800 tons, 13-story film building, Ninth avenue between Forty-fourth and Forty-fifth streets, New York, to Levering & Garrigues Co.

2500 tons, apartment, Spruce street, Philadelphia, to Bethlehem Steel Co.

2500 tons, building for Deere & Co., Moline, Ill., to unstated fabricator.

2400 tons, apartment building, 1215 Spruce street, Philadelphia, to Bethlehem Steel Co.

1850 tons, Kenawha Valley bank and office building, Charleston, W. Va., awarded unstated eastern fabricator through James Stewart Co., New York.

1800 tons, steam plant of Alabama Power Co., Warrior river, Birmingham, Ala., to Nashville Bridge Co.

1600 tons, memorial auditorium for University of Minnesota, Minneapolis, to American Bridge Co., previously noted awarded unstated fabricator.

1600 tons, loft, east Forty-fifth street, New York, to Harris Structural Steel Co.

1000 tons, Parsons residence, West End, N. J., to Hedden Iron Construction Co.

870 tons, temple Sholem synagogue, Chicago, to A. Bolters Sons.

800 tons, hydroelectric power plant, Waterville, N. C., to Virginia Bridge & Iron Co.

700 tons, building for Northwestern Power Co., Minneapolis, to Minneapolis Steel & Machinery Co.

500 tons, four state bridges for Vermont, to Lackawanna Steel Construction Co.

475 tons, approaches to bridge over Missouri river, at St. Joseph, Mo., to St. Joseph Structural Steel Co.

400 tons, New Hampshire state highway bridge, to American Bridge Co.

400 tons, garage, Milwaukee, to A. F. Wagner Architectural Iron Works.

360 tons, Reuss building, Philadelphia, to Belmont Iron Works, through Wark Co., general contractor.

300 tons, two bridges for the Boston & Maine railroad, to Boston Bridge Works.

220 tons, bridge over McKenzie river, Coburg, Oreg., to Portland Bridge Co.

200 tons, division M, Chicago sewage treatment works, Stickney, Ill., to Midland Structural Steel Co.

200 tons, 150-foot bridge span, Garland City, Okla., to unstated fabricator.

200 tons, miscellaneous work including St. Philip's school, Crafton, Pa., to Guibert Steel Co.

190 tons ,three state highway bridges, Michigan, to Massillon Bridge & Structural Co. in addition to bridges recently placed by Michigan commission with same interest.

175 tons, alterations to Joseph Horne Co. store, Pittsburgh, to McClintic-Marshall Co.

158 tons, hotel, Eighth and Lake streets, Los Angeles, to Union Iron Works.

150 tons, Sears, Roebuck & Co. building, Boston, to New England Structural Co.

150 tons, bridge at Waterbury, Vt., to Bethlehem Steel Co.

150 tons, bridge spans for highway commission, Illinois, to Continental Bridge Co.

149 tons, W. T. Grant residence, Dayton, O., to Massillon Bridge & Structural Co.

125 tons, New York state highway bridge, to Bethlehem Steel Co.

120 tons, Montgomery Ward building at Charleston, W. Va. ,to Massillon Bridge & Structural Co.

115 tons, bridge for Michigan state highway department Muskegon, Mich., to American Bridge Co.

100 tons, miscellaneous work including addition for Sterrit-Thomas Foundry Co., Pittsburgh, to W. N. Kratzer Co.

100 tons, headframe for mine for Clinton West Co., Bodie, Calif., to Moore Drydock Co.

100 tons, rebuilding blast furnace of Sloss-Sheffield Steel & Iron Co., Birmingham, Ala., to Ingalls Iron Works Co.

CONTRACTS PENDING

10,000 tons, Detroit Biltmore hotel and Adcraft building, Detroit; bids being taken.

6000 tons, court house, Milwaukee.

2000 tons, Loew's theater, Akron, O.; bids close May 15.

1700 tons, Spokane street bridge, bascule type, Seattle; substructure bids in May 18.

1200 tons, Brooklyn Ear and Eye hospital, Brooklyn, N. Y.

1125 tons, Kettle Falls cantilever bridge, Washington; general contract to J. H. Killman.

1000 tons, five bridges, for the Pennsylvania railroad; bids asked.

1000 tons, Clifford B. Connelley trade school, Bedford and Crawford streets, Pittsburgh; bids close May 15.

800 tons, municipal highway bridge, Baltimore; bids asked.

700 tons, 16-story loft building, First avenue and Forty-ninth street, New York.

600 tons, apartment, Atlantic City, N. J.; bids asked.

600 tons, new plant for Miller Saw Trimmer Co., Northside, Pittsburgh; bids closed May 1.

400 tons, Market building, Thirteenth and Jefferson streets, Oakland, Calif.; bids being

taken.
400 tons, 10-story loft building, Cooper Square, New York.
380 tons, warehouse for Port commission, Oakland, Calif.; Herrick Iron Works low bidder.
300 tons, government arsenal, near Dover, N. J.
300 tons, Sewickley Valley hospital, Sewickley, Pa.; bids close May 7.
300 tons, Nathan Hale junior high school, Cleveland; George M. Hopkinson, architect.
300 tons, Parkhurst Florian junior high school, Cleveland; George M. Hopkinson, architect.
300 tons, warehouse for Parr terminal, Richmond, Calif.; bids opened.
260 tons, bridge on Benson-Douglas highway, Phoenix, Ariz.; bids in May 2.
250 tons, approximate, Jewish orphan asylum, Fairmount boulevard, Cleveland; Morris & Weinberg, architects, bids asked.
250 tons, St. Francis hospital, Jersey City, N. J.
225 tons, New York state highway bridge.
225 tons, bridge for Seaboard Air Line in Florida; bids asked.
200 tons, municipal bridge, Milwaukee; steel bids up soon.
120 tons, warehouse addition, Fifteenth and Vermont streets, San Francisco; bids being taken.
100 tons, grandstand and club house on Graham athletic field, William Penn highway, Greensburg, Pa.; bids closed April 30.
100 tons, church at Huntington, Pa.; bids being taken.
100 tons, Lyceum theater, Beaver Falls, Pa.; bids being compiled.
100 tons, Canterbury elementary school, Cleveland.
Unstated tonnage, 30x250-foot building, freight house for Erie railroad, Scranton road, Cleveland; Robert S. Parson, 50 Church street, New York, architect.
Unstated tonnage, plant addition, Hamilton Banknote Co., Brooklyn, N. Y.
Unstated tonnage, Robin Memorial nurses home, Wilmington, Del.
Unstated tonnage, Boston & Maine railroad terminal building, Boston; bids being taken.
Unstated tonnage, Providence, R. I.; five small state bridges; general contractors' bids in. Jobs will include a small volume of reinforcing material.

Algoma Shipments Big

Toronto, Ont., May 1.—The steel plant of the Lake Superior Corp. at Sault Ste. Marie, Ont., in March shipped 52,854 tons while shipment of all products totaled 61,328 tons, according to Robert Dodd, Montreal, president of the corporation. An order for 100,000 tons coke has been booked from the Mond Nickel Co. and the International Nickel Co. Within 20 years the $15,000,000 investment in the Algoma Steel Corp. will have doubled, Mr. Dodd predicted.

Orders Tungsten Survey

Washington, May 1.—The senate has passed the resolution introduced by Senator Oddie calling upon the United States tariff commission "to make forthwith an investigation into the costs of production of tungsten in the United States and China, the principal competing country, and to report its findings to the President of the United States."

Heads Standards Group

William J. Serrill, United Gas Improvement Co., Philadelphia, has been elected chairman of the American Engineering Standards committee. He succeeds C. E. Skinner, Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., who held the office for three years. The vice president will be Cloyd M. Chapman, representative of the American Society of Mechanical Engineers. The American Engineering Standards committee has its headquarters at 29 West Thirty-ninth street, New York.

Concrete Bars

Prices Weaken in Chicago District—Roadwork Continues Heavy Consumer

COMPETITION of rail with new billet steel bars has softened prices on the latter grade in the Chicago district, $4 a ton being conceded to win business. Prospects for heavy spring buying continue good as inquiries develop. Sales in the past week were lighter than in several weeks previous. Roadwork continues a heavy consumer, with Buffalo district active.

REINFORCING BAR PRICES, PAGE 1157

Pittsburgh, May 1.—While a number of interesting inquiries from a tonnage standpoint have developed in the reinforcing concrete bar market, awards this week are light and few. Brashear reservoir, Northside, Pittsburgh, will require 300 tons. A change in plans at the postoffice garage makes the total tonnage 115 tons instead of 360 tons, as reported last week. The market on new billet bars still is 1.85c to 1.90c.

Boston, May 1.—Demand continues good for small tonnages of concrete bars. These orders are so numerous that the total is satisfactory. Developments in New Hampshire indicate additional orders for road mesh in the near future, while Connecticut also is expected to place additional tonnage for road development.

Buffalo, May 1.—Covering of reinforcing bar inquiry is slow but the amount of pending inquiry grows steadily. More than 1000 tons of new inquiry was listed this week, including both bars and mesh. Covering for late second quarter shipment promises to be heavy within the next 30 days. Prices range from 2.00c, Lackawanna, for the large tonnages shipped direct from steelworks to 2.75c for truck delivery lots.

Cleveland, May 1.—Small lots of concrete bars continue to be moved by local sellers. Inquiries and awards of large tonnages are scarce. Considerable work is in prospect. New billet bar prices are steady at 1.85c, Cleveland, for the small tonnages moving, with 1.75c, mill, being quoted for rail steel bars.

Chicago, May 1.—Billet reinforcing bar prices have lost strength again. The minimum pice for attractive business has been reduced in most cases to 2.15c from 2.35c. The weakness has developed partly through changes in specifications from billet to rail steel bars, which has resulted in billet bar distributors making strong efforts to hold business. The outlook continues good on both billet and rail steel bars. Spring business promises to be fully up to last year. Rail steel bars are steadier at 1.85c to 1.95c.

Awards Compared

	Tons
Awards this week	4,290
Awards last week	10,590
Awards two weeks ago	14,658
Awards this week in 1927	3,565
Average weekly awards, March	7,761
Average weekly awards, 1928	7,805
Total awards to date, 1927	86,836
Total awards to date, 1928	132,676

CONTRACTS PLACED

900 tons, bridge, Allentown, Pa., to Concrete Steel Co.
900 tons, Pennsylvania railroad warehouse, South Philadelphia, Pa., to Jones & Laughlin Steel Corp., through A. Taylor Co.
800 tons, Daily News building, Chicago, to unstated fabricator.
400 tons, rail steel, building for Nu-Art Engraving Co., Chicago, to Inland Steel Co.
250 tons, including 200 tons road work in McKean county, Pa., and 50 tons for a building for Hope Natural Gas Co., Clarksburg, W. Va., to Truscon Steel Co.
175 tons, building for Bassick Mfg. Co., Chicago, to Barton Spider-Web System Inc.
170 tons, billet steel, temporary Board of Trade building, Chicago, to Concrete Engineering Co.
155 tons, paving Mt. Carmel to Zion highway, Salt Lake City, to unnamed interest.
120 tons, college building for Davidson, N. C., to Connors Steel Co.
115 tons, building for Peoples Gas Light & Coke Co., Chicago, to Concrete Engineering Co.
105 tons, Borland building, Chicago, to Barton Spider-Web System Inc.
100 tons, Eastern States feed mill, Buffalo, to Kalman Steel Co.
100 tons, miscellaneous work including 75 tons for Norton memorial hall, Chautauqua, N. Y., through Rust Engineering Co., general contractor, to Kalman Steel Co., with two or three small state highway bridges.

CONTRACTS PENDING

300 tons, school No. 81, Buffalo; bids to be asked soon.
300 tons, Nathan Hale junior high school, Cleveland; George M. Hopkinson, that city, architect.
300 tons, Parkhurst Florian junior high school, Cleveland; bids being taken.
300 tons, Brashear reservoir, Northside, Pittsburgh; bids close May 10.
275 tons, mesh, for Hamburg-Springville, N. Y., highway; Harrison Engineering & Construction Co., Buffalo, low bidder.
275 tons, Huntington street station, Reading Co., Philadelphia.
250 tons, Sewickley Valley hospital, Sewickley, Pa.; bids extended from May 7 to May 15.
225 tons, mesh, for Odessa-Mecklenberg, N. Y., highway; Frost & Lowman, Watkins Glen, N. Y., low bidder.
155 tons, piers for West Waterway bridge at West Spokane street, Seattle; bids in May 18.
150 tons, Clifford B. Connelley trade school, Pittsburgh; bids close May 15.

115 tons, floors and retaining wall, postoffice garage, Pittsburgh; bids being asked.
110 tons, mesh, Camden road, Oneida county, New York; Harrison Engineering & Construction Co., Buffalo, low bidder.
110 tons, mesh, for Keuka-Penn Yan, N. Y., highway; Rochester Vulcanite Paving Co. low bidder.
100 tons, building for Miller Saw Trimmer Co., Pittsburgh; bids being considered.
100 tons, building for Grobnieski Bakery Co., Pittsburgh; bids being taken.
100 tons, Lake Shore apartment, Cleveland. C. R. Cummins Co., owner; bids asked.
100 tons, Oak Park elementary school, West Thirtieth and Oak Park, Cleveland; George M. Hopkinson, that city, architect.

Valley Output Down

Youngstown, O., May 1.—Steel production has dropped off slightly in this district due to a corresponding decline in finishing mill specifications. Open-hearth activity has declined from 39 units active out of 53 independents last week to 36 this week. Steel bar production is at 55 per cent among independents and 75 per cent for Carnegie Steel Co. Out of 127 independent sheet units, 97 started Monday against 106 a week ago, though more may start later in the week. Two less tubular units are active this week. Strip operation is 85 per cent and tin mill about the same.

Plans Dock at Hamilton

Toronto, Ont., May 1.—With the opening of the new Welland canal delivery of ore and coal by water will be expedited and the Steel Co. of Canada will construct a modern unloading and storage dock on the water front of Hamilton, Ont., adjacent to the steel plant, said Ross S. McMaster, president, at the recent annual meeting of the company. Revision of the steam plant and replacement of some rolling mill equipment is contemplated. Blast furnace "A" will be rebuilt when the pig iron market justifies.

Buffalo Still at 80-85

Buffalo, May 1.—Steelworks operations in the district average 80 to 85 per cent. April production was higher than that of any month of the year. May schedules are being planned at present operating rates.

Central Alloy Net Gains

Earnings of the Central Alloy Steel Corp. for the first quarter of 1928, were $1,108,100, after all charges, but before federal taxes. This compares with $684,905 before taxes in the first quarter of 1927.

Trumbull 1927 Net Off

Earnings of the Trumbull Steel Co. for 1927 showed a sharp decline compared with one year before. The net for the year was $241,456 after charges, but before federal taxes, compared with $2,263,963 in 1927.

The first steam cylinder cast in the United States was made at the foundry of Sharp & Curtenius, New York.

Rails, Cars

Rail, Track Accessory Activity Limited—Erie Inquiry Features Equipment Market

DEMAND for standard steel rails and track accessories is confined to scattered small tonnages. Track material sales of the week totaled about 4500 tons in the Chicago district. Rail inquiries are light for secondary purchases. Erie railroad definitely is inquiring for 1005 freight cars, 35 passenger cars and 36 locomotives, the largest equipment business in prospect.

RAILROAD TRACK PRICES, PAGE 1158

Chicago, May 1.—Activity is more marked in demand for railroad spikes and track bolts. Inquiries are coming out in numerous lots. It is difficult to estimate the actual volume of inquiry because of constant additions to pending lists. Sales of track accessories amounted to about 4500 tons during the week. Operations of mill departments engaged in track fastenings output are near capacity.

Railroads are urging early shipment on pending rail orders. No additional secondary purchases of standard steel rails have been made during the week, but 4000 to 5000 tons is on inquiry. Rail mills are continuing to operate about 90 per cent. This rate has continued unbroken for the past four months.

Some additional miscellaneous car equipment inquiries have appeared, but no buying of importance is in prospect. St. Louis-San Francisco has placed 250 underframes with Virginia Bridge & Iron Co. Pullman Inc. has ordered 100 sleeping cars from Pullman Car & Mfg. Corp.

New York, May 1.—Approximately 2700 freight cars are pending and about 900 coaches, including 300 refrigerator express for Pennsylvania railroad and 200 passenger cars and trailers for the Chicago Rapid Transit. Some sellers expect heavy freight car inquiries to emanate from the New York Central and Pennsylvania railroads before July 1. Preliminary computation places freight car awards for April at 588, compared with 2698 in March and 3675 in April, 1927. The eastern railway market is featured by an inquiry from the Erie railroad for 1005 miscellaneous freight cars, 35 miscellaneous passenger cars and 36 locomotives. In addition this railroad contemplates reconditioning a large number of cars and locomotives.

Pittsburgh, May 1.—With so many coal mines dropping out of production in West Virginia and other territories, not singly but in groups of ten or more at a time, the demand for light rails is shrinking. Occasional carloads, or at most 100 tons at a time, are sold and makers rolling rails from billets are quoting $36.

Makers of track accessories still are running on their backlogs, some practically full. Prices are firm at 2.80c on standard spikes and occasional orders for small spikes are taken at that price.

CAR ORDERS PLACED

Chicago, Rock Island & Pacific, 500 underframes, to Pennsylvania Car Co.
Northwestern Refrigerator Line, 500 refrigerator cars, to American Car & Foundry Co.
Pullman Inc., 100 sleeping cars, to Pullman Car & Mfg. Corp.
Southern Pacific, 175 tank cars, to General American Tank Car Corp.
St. Louis-San Francisco, 250 underframes, to Virginia Bridge & Iron Co.

LOCOMOTIVE ORDERS PLACED

Southern Pacific, ten locomotives, to Baldwin Locomotive Works, in addition to three noted placed last week.
Tampanga Sugar Development Co., Philippine islands, two locomotives, to Baldwin Locomotive Works.

CAR ORDERS PENDING

Chicago, Milwaukee, St. Paul & Pacific, two flat cars, bids asked; revision of an inquiry for five, previously noted.
Chicago, Rock Island & Pacific, five express horse cars; bids asked.
Chicago, South Shore & South Bend, ten motor cars; bids asked; option requested on five additional cars and five trailers.
Chicago, St. Paul, Minneapolis & Omaha, 200 flat cars.
Erie, 1005 freight cars, bids asked; specifications call for 500 box, 500 automobile furniture, and 5 depressed flat cars; the Erie also will make repairs to 2485 box cars and is inquiring for 25 passenger coaches, 5 express cars, 3 combination baggage and mail and 2 dining cars.
St. Louis-San Francisco, two underframes and superstructures for automobile cars.
Southern Pacific, 50 caboose cars and six dining cars; in addition to 46 miscellaneous coaches previously noted; bids asked.
Southern Cotton Oil Co., 20 tank cars; bids asked.
United Sugar Co. of Mexico, ten cane cars; bids asked.
Virginian 1000 hopper car bodies. Rebuilt trucks will be used.

LOCOMOTIVE ORDERS PENDING

Erie, 36 locomotives, including one oil-electric locomotive, bids asked; 75 locomotives are to be reconditioned.

On the recommendation of the management division, the American Society of Mechanical Engineers' main research committee recently has organized a special research committee on management formula. This committee proposes to make a study of management formulas to reconcile present ones and to develop new ones for adoption, if possible. Co-operation with the American Management association has been arranged.

Wire

Light Sales Keep Production at Low Mark—Delayed Spring Weather Blamed—Prices Steady

BLAME for light demand for wire and nails is being laid on the weather, as a deterrent to building and farm work. Production of the latter is not more than 50 per cent in most cases. Jobbers have had sufficient stocks from heavy specifications of March to cover all demands. Concessions on nails are being resisted by most makers, but in some districts still are made.

WIRE PRICES, PAGE 1158

Pittsburgh, May 1.—The wire products market is exceptionally quiet because jobbers and large users have stocks on hand. On account of the late season, these stocks are delayed in moving to consumers. In the meantime, while here and there some special circumstances are encountered where customers were permitted to specify in April at first quarter prices, makers of nails have taken a more unified stand against concessions under $2.65. Manufacturers are specifying fairly well against 2.50c steel wire contracts. Wire plants are on a 50 per cent operating basis.

Worcester, Mass., May 1.—New buying of wire and wire products is in limited lots, but specifications are more numerous. Wire remains 2.65c, Worcester. Manufacturers' wire moves steadily and the call for plain wire is holding fairly well. Mill stocks are down to a satisfactory workable volume and production is little changed.

New York, May 1.—Due to the unseasonable weather, wire nails have not been moving out of jobbers' stocks as rapidly as usual, and orders for replacement are unusually small. The rate of operations at wire nail mills does not appear to be greater than 40 to 50 per cent. There is not enough business here to afford a real test of prices, but on most sales the price is $2.65, base, Pittsburgh. Demand for manufacturers' wire continues good and operations in this line are at the rate of 50 to 60 per cent and in some cases better. The price of wire continues 2.50c, base, Pittsburgh.

Buffalo, May 1.—Demand for plain wire and specialties continues good, with automobile manufacturers among the larger buyers. Specifications indicate consumption is large. Welded fabric sales during the next 60 days are expected to approach record proportions. Wire works here are operating at fully 80 per cent of capacity.

Cleveland, May 1.—Wire and wire nail specifications are coming in to local sellers in good quantity. Several hundred tons of wire were sold in the past week to outside mills at 2.50c, Cleveland. This price is firm for Cleveland district delivery. Nails are holding firm at $2.65, Cleveland, per 100-pound keg for the northeastern section of Ohio, but the $2.55 of southern Ohio makers has been met in competition by larger interests. The market is comparatively stronger than in the first quarter of this year.

Detroit, May 1.—Plain wire holds fairly well at 2.50c, Cleveland, but on wire nails $2.55 or $2 below the published market can be done. Business in wire products tends to contract moderately.

Chicago, May 1.—Quotations of $2.60 to $2.65 are being made for wire nails, but sales are light. Demand for other wire products contrasts sharply with nails. Woven wire fencing and barbed wire are being featured in active spring buying.

Strip Steel

Small Lots Go at Maximum but Tonnage Buyers Bargain for Price

STRIP PRICES, PAGE 1158

Pittsburgh, May 1.—Makers of hot and cold strip catering to specialty buyers where tonnages mostly are small, find it easy to obtain the top of quoted spreads, namely 3.15c on cold (2.90c on 3 tons or over) and 1.90c to 2.10c on hot. One mill maintaining those prices has all its cold rolling equipment active and three hot mills. Other strip steel producers who cater to individually large tonnage buyers find competition keen, some mills apparently being anxious to obtain such business for backlogs. Some wide hot strips have sold at 1.85c, and the top price on narrow material at the moment seems to be 2.10c. Some cold strip has gone at 3.00c to tonnage buyers, that is 2.75c in quantities. Strip making is 75 to 85 per cent. A seasonal decline in tonnage was encountered the past week, due mostly to falling off in automotive tonnage. Diversified buyers are letting down a trifle on specifications. The falling off in April as compared with March will not amount to more than 10 per cent.

Detroit, May 1.—Hot strip is the weakest of all finished products despite heavy orders recently from parts makers, resulting in some degree from the distribution of Ford business. On the wider sizes less than 1.90c, Pittsburgh, is being done by large users. Cold-rolled strip to larger automotive users is 2.75c, Pittsburgh-Cleveland.

Cleveland, May 1.—Hot rolled strip steel demand in the last week of April fell off from the heavy specifying of preceding weeks. Although the local market is fairly well stabilized at 2.80c to 2.90c, for 6 to 12-inch hot strip, 1.75c tonnage is being shipped against contracts. Cold strip is steady at 2.75c, Cleveland, for 3 tons or over of a size.

Cold Finished Steel

Output Remains Well Up to Average at Firm Price

COLD FINISHED PRICES, PAGE 1157

Pittsburgh, May 1.—While April was slightly below March in cold finished bars, April kept well up to the monthly average, 70 per cent. Automotive industries and industries allied therewith have not been consuming as much steel but makers are optimistic for May. Order books are fairly heavy and there is not a sign of cancellation or suspension. Agricultural implement makers' demands are steady, and small diversified manufacturing lines in general are taking full quotas. Operations are 70 to 75 per cent. The 2.20c price remains firm.

Cleveland, May 1.—Demand for cold finished steel bars has eased off a little, April totals generally being below March. Screw machine products manufacturers are heavy buyers. Considerable business has come out of Detroit lately for screw machine products, especially from the Ford Motor Co. Steam shovel and road machinery manufacturers are active in taking cold finished bars for production of spring and summer demand. Prices are firm at 2.25c, Cleveland.

Detroit, May 1.—Few steel products are so firm as cold finished bars, selling to the larger users at 2.20c, Chicago. Specifications for May shipment indicate consumption approximating that of April. A letdown later in the month would not be inconsistent with seasonal conditions.

Pittsburgh Steel Rate Is Slipping Slightly

Pittsburgh, May 1.—While steelmaking in the greater Pittsburgh area has slipped a notch or two in some directions, the general average remains about 80 per cent. Some of the smaller independents are on a 70 or 75 per cent basis, and one to the north of Pittsburgh is 50 per cent. Some of the larger ones, however, still maintain an 85 per cent schedule. That latter figure is about the rate of Carnegie Steel Co., Jones & Laughlin Steel Corp., Weirton Steel Co. and others.

Steels with 3 to 5 per cent silicon are widely employed in the fabrication of electrical appliances because of their magnetic properties.

Nonferrous Metals

Shipments on Old Orders Continue Large and New Buying Is Needed to Support Prices—Producers Are Fairly Well Booked

Prices of the Week, Cents a Pound

	Copper—Electro delivered	Copper—Lake delivered	Copper—Casting refinery	Straits Tin New York Spot	Straits Tin New York June	Lead New York	Lead East St. Louis	Zinc St. Louis	98-99% Aluminum	Spot Antimony	Ingot Nickel
April 25	14.25	14.35	13.90	52.25	51.75	6.10	6.00	5.80	23.90	10.12½	35.00
April 26	14.25	14.35	13.90	51.87½	51.62½	6.10	6.00	5.80	23.90	10.07½	35.00
April 27	14.25	14.35	13.90	52.00	51.75	6.10	6.00	5.80	23.90	10.12½	35.00
April 30	14.25	14.35	13.90	51.37½	51.12½	6.10	6.00	5.80	23.90	10.25	35.00
May 1	14.25	14.35	13.90	51.12½	50.75	6.10	6.00	5.82½	23.90	10.37½	35.00

NEW YORK, May 1.—Shipments of nearly all nonferrous metals continue large. It does not take much new buying to hold prices firm. Large order books extend through May in most metals, but with the exception of tin, not much has been sold beyond that month. Some copper has been sold for June shipment, but little lead or zinc has been placed for that month and unless needs should greatly diminish large buying of copper, lead and zinc should be done shortly.

Shipments of nickel in April were the largest so far this year. Aluminum also is moving well.

Brass and copper products prices are unchanged, with most copper products on the basis of 14.25c for ingot copper, and brass on the basis of 14.00c, delivered, for copper. Only moderate buying is being done but the mills are busy on recent orders.

Copper—Some metal sold for May shipment at 14.25c, Connecticut, and 14,37½c, Midwest. Shading has disappeared with slightly improved demand. This buying was largely of a fill-in nature. Pressure continues for shipment on old orders. Export buying, mostly for early shipment, continues active at the unchanged price of 14.50c, c.i.f., European ports.

Tin—Domestic deliveries of tin in April were 7010 tons, nearly as large as deliveries in March and several hundred tons larger than the monthly average for last year. Stocks and landing totaled 1973 tons, or 105 smaller than at the end of March. Banca shipments were high at 1619 tons, while Chinese continued light. Straits tin shipments were under last year's monthly average. The world visible supply was cut 585 tons during the month to 15,001 tons.

Business was active about a week ago and then the market became quiet, with a resultant sag in prices. Consumption here and in Europe is unusually large, but output also continues heavy so that while buying usually causes strength, the market fails to hold just as soon as buying support lags.

Zinc—Prime western sold only lightly the past week and with little change in prices. Steadiness was based on fairly good shipments of metal and the firmness of the ore market. However, the market the past few days was not quite so strong as a week ago. High grade metal is moving well with prices unchanged.

Lead—Routine buying is being done and producers' prices appear firm. Some shading has been done on small outside lots but this development was of little importance as it did not stop sales at full prices.

Aluminum—New business is light but shipments are going well and prices are firm all through the list. —*Daily Metal Trade.*

Mill Products

Base prices cents per pound f.o.b. mill

SHEETS	
Yellow brass (high)	18.75
Copper, hot rolled	23.00
Lead, full sheets (cut ¼c more)	9.75
Zinc (100-pound base)	9.00
Aluminum, flat sheets, up to 10 gage, 3" to 72" wide	31.30
SEAMLESS TUBES	
Yellow brass (high)	23.62½
Copper	24.50
RODS	
Yellow brass (high, full turning)	16.50
Naval brass	19.25
WIRE	
Copper, car lots	15.75
Yellow brass (high)	19.25

Old Metals

Dealers' buying prices, cents per pound

HEAVY RED BRASS	
New York	9.25
Chicago	9.25 to 9.50
Cleveland	9.50 to 10.00
HEAVY YELLOW BRASS	
Chicago	6.75 to 7.00
Cleveland	7.25 to 7.50
ZINC	
New York	3.50
Cleveland	3.00 to 3.25
HEAVY COPPER AND WIRE	
New York	11.50 to 11.75
Boston	11.00 to 11.75
Chicago	10.75 to 11.00
Cleveland	11.50 to 11.75
RED BRASS BORINGS	
New York	8.25 to 8.50
YELLOW BRASS TUBING	
Cleveland	7.50
LIGHT COPPER	
New York	10.00 to 10.25
Chicago	9.50 to 9.75
Cleveland	10.00 to 10.25
LIGHT BRASS	
Boston	5.75 to 6.00
Chicago	6.25 to 6.50
Cleveland	5.50 to 5.75
ALUMINUM	
Clippings, Cleveland	17.50
Borings, Cleveland	9.50
Cast, Cleveland	13.00
Cast, Boston	11.50 to 12.00

Secondary Metals

Remelt Aluminum No. 12	16.50 to 17.00
Brass ingot, 85-5-5-5	12.25 to 12.50

Coke By-Products

Toluol Leads Demand with Solvent Naphtha Bringing Up the Rear

New York, May 1.—Cold tar product prices are steady, with demand good, particularly for toluol, of which paint and lacquer manufacturers are still heavy buyers. Solvent naphtha is the least active on the list.

While the season for fertilizing manufacturers is nearing an end, spot buying of sulphate of ammonia is still active with prices holding around $2.35, delivered. Export demand again is quiet with prices holding nominally at $2.20, port, for material in double bags.

Demand for naphthalene is slightly less active, as most druggists have covered for the spring cleaning season. However, prices are unchanged.

Coke Oven By-Products

Per Gallon at Producers' Plants in Tank Lots

	Spot	Contracts
Pure benzol	$0.22	.....
90 per cent benzol	0.22	.....
Toluol	0.35	.....
Solvent naphtha	0.30	.....
Commercial xylol	0.30	.....
Phenol	0.17 to 0.18	.....
Per Pound at Producers' Plants		
Naphthalene flakes	0.05½ to 0.06½	
Naphthalene balls	0.06½ to 0.07½	
Per 100 Pounds Delivered		
Sulphate of ammonia	$2.35	

Stocks Airplane Steels

Cleveland, May 1.—Edgar T. Ward's Sons Co., Newark, N. J., has opened a department in its Cleveland warehouse especially to serve the aeronautical industry. It is carry a stock of aircraft steels, including cold finished steel bars, cold rolled strip steel, cold drawn seamless steel tubing, both square and streamline. Recognizing the importance of specifications for aircraft work, the Ward's Sons company furnishes a certificate of chemical and physical analysis with each shipment of its steels, which are made to conform to United States army and navy requirements.

Warehouse

April Sales Totals Exceed March but Fall Behind 1927—Increasing Activity in Building Materials Expected to Aid May Demand

DEMAND for iron and steel from warehouse stocks is showing improvement due largely to heavier purchasing of building materials. April sales totals exceeded those of March in most districts. Prices during the week reflected no definite movements.

Movement of warehouse materials at Boston was slow the past week, with a firm price undertone. Local interests do not look for much improvement in the next fortnight.

Warehouse demand in the New York metropolitan district is being maintained at a rate which has placed the month just closed as the best this year. Some jobbers express doubt whether April was better than the corresponding period last year.

One of Buffalo's principal warehouses reports that the individual number of orders booked in April was approximately the largest number ever taken in that office in a month. Sales were small individually and the volume was not near record proportions. Indications are for continuance of business on a similar scale in May, with building materials leading the way.

Pittsburgh jobbers look upon improvement in the past few days as more of a flurry than a real trend toward better conditions. April totals for one or two sellers are a trifle better than March, but the year to date is considerably below last year both in tonnage and value.

Philadelphia jobbers have extended the scope of warehouse quantity differentials to include the entire metropolitan territory, embracing such towns as Chester, Norristown and Phoenixville and also New Jersey south of Trenton. More talk now is being heard of adopting similar quantity extras on warehouse sales of plates and shapes.

Baltimore jobbers generally have advanced prices on iron and steel bars from warehouse and now are charging 3.10c, base, delivered locally.

For most Detroit warehouses the daily rate of April business has fallen moderately under March. Automotive emergency buying has been fair, especially from cushion manufacturers wanting strip. Building demands are expanding more slowly than anticipated. Automotive demand is reflected best in mild bars.

Sales by Cleveland warehouses have shown little or no gain in this district during the past few days. Jobbers' stocks are large because they specified heavily on their low-priced mill contracts at the end of the first quarter.

Warehouse Quotations in Cents Per Pound at Leading Market Centers

STEEL BARS

Baltimore	3.10c
Boston	3.265c
Buffalo	3.30c
Chicago	3.00c
Cincinnati	3.30c
Cleveland	3.00c
Detroit	3.00c
Ft. Worth	3.75c
Houston	3.00c
Los Angeles	3.30c
New York† ††	3.20c to 3.25c
Philadelphia*	2.50c
Pittsburgh	2.90c
Portland	3.00c
San Francisco	3.15c
Seattle	3.00c
St. Louis	3.15c
St. Paul	3.25c
Tulsa	3.75c to 4.06c

IRON BARS

Baltimore	3.10c
Boston	3.265c
Buffalo	3.30c
Chicago	3.00c
Cincinnati	3.30c
Detroit	3.00c
Ft. Worth	3.75c
New York†	2.80c to 3.24c
Philadelphia*	2.50c
St. Louis	3.15c
Tulsa	3.75c to 4.06c

REINFORCING BARS

Baltimore	2.80c to 3.31c
Boston	3.265c to 3.50c
Buffalo	2.75c
Cincinnati	3.15c
Cleveland	2.20c
Detroit	3.00c
Ft. Worth	3.50c
Houston	3.00c
Los Angeles cl.	3.05c
Los Angeles lcl.	3.30c
New York	2.95c to 3.10c
Philadelphia	2.30c to 2.80c
Pittsburgh	2.90c to 3.175c
San Francisco cl	2.85c
San Francisco lcl.	3.10c
Seattle	3.00c
St. Louis	3.15c
Tulsa	3.75c to 4.00c
Youngstown	2.30c to 2.60c

STRUCTURAL SHAPES

Baltimore	2.50c to 3.41c
Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.40c
Cleveland	3.00c
Detroit	3.10c
Ft. Worth	4.25c
Houston	3.25c
Los Angeles	3.30c
New York†	3.25c to 3.30c
Philadelphia	2.40c to 2.80c
Pittsburgh	3.00c
Portland	3.00c
San Francisco	3.15c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.35c
Tulsa	3.75c to 4.16c

PLATES

Baltimore	2.50c to 3.41c
Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.40c
Cleveland, ¼-in. and thicker	3.00c
Cleve., 3/16-in.	3.20c
Detroit	3.10c
Detroit, 3/16-in.	3.30c
Ft. Worth	4.00c
Houston	3.00c
Los Angeles	3.30c
New York†	3.25c to 3.30c
New York† (floor)	5.05c to 5.10c
Philadelphia	2.40c to 2.80c
Phila., 3/16-in.	2.60c to 3.00c
Pittsburgh	3.00c
Portland	3.00c
San Francisco	3.15c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.35c
Tulsa	3.75c to 4.16c

No. 10 BLUE ANNEALED

Baltimore	3.00c to 3.66c
Boston, 3/16-in.	3.915c
Buffalo	3.70c
Chicago, to 40 in.	3.50c
Chicago, over 40 in.	3.60c
Cincinnati	3.60c
Cleveland	3.25c
Detroit	3.50c
Ft. Worth	4.70c
Houston	3.90c
Los Angeles	4.00c
New York	3.90c
Portland	4.00c
Philadelphia	3.15c
Pittsburgh**	3.10c
San Francisco	3.75c
Seattle	4.00c
St. Louis	3.60c
St. Paul	3.75c
Tulsa	4.20c to 4.56c

No. 24 BLACK SHEETS

Baltimore	3.60 to 4.00c
Boston	5.00c
Buffalo	4.20c
Chicago	3.95c
Cincinnati	4.05c
Cleveland	3.75c
Detroit	4.10c
Ft. Worth	4.70c
Los Angeles	5.10c
New York	3.90c to 4.10c
Philadelphia*†	4.00c
Pittsburgh‡	3.75c
Portland	4.90c
San Francisco	4.90c
Seattle	5.00c
St. Louis	4.45c
St. Paul	3.95c
Tulsa	4.75c

No. 24 GALVANIZED SHEETS

Baltimore	4.30c to 4.75c
Boston	5.85c
Buffalo	5.05c
Chicago	4.80c
Cincinnati	4.90c
Cleveland	4.60c
Detroit	4.90c
Ft. Worth	5.75c
Houston	5.30c
Los Angeles	5.50c
New York	4.60c to 4.70c
Philadelphia*†	4.75c
Pittsburgh‡	4.60c
Portland	5.65c
San Francisco	5.50c
Seattle	5.75c
St. Louis	5.25c
St. Paul	4.90c
Tulsa	5.55c

BANDS

Baltimore	3.25c to 4.06c
Boston	4.015c to 5.00c
Buffalo	4.05c
Chicago	3.65c
Cincinnati	3.95c
Cleveland	3.65c
Detroit	3.65c
Ft. Worth	4.40c
Houston	3.65c
Los Angeles	4.25c
New York†	4.00c
Philadelphia	3.35c
Pittsburgh	3.60c
Portland	4.00c
San Francisco	4.00c
Seattle	4.00c
St. Paul	3.90c
Tulsa	4.71c

HOOPS

Baltimore	4.16c
Boston	5.50c to 6.00c
Buffalo	4.05c
Chicago	4.15c
Cincinnati	4.40c
Cleveland	3.65c
Detroit	4.15c
New York†	4.50c
Philadelphia	3.60c
Pittsburgh	4.50c
Seattle	5.00c
St. Paul	4.40c

COLD FINISHED STEEL

	Rounds, hexagons, squares	Flats, squares
Baltimore	3.25c	3.75c
Boston	3.45c	3.95c
Buffalo	3.95c	4.45c
Chicago	3.60c	4.10c
Cincinnati	3.85c	4.35c
Cleveland	3.65c	4.15c
Detroit	3.85c	4.35c
Los Angeles (a)	4.50c	
New York	3.40c	3.90c
Philadelphia	3.35c	3.85c
Pittsburgh	3.60c	4.10c
Portland (a)	5.00c	
San Fran. (a)	4.25c	
Seattle (a)	5.00c	
St. Paul (a)	3.85c	
Tulsa	4.66c	5.16c

(a) Rounds only.

COLD ROLLED STRIP

Boston, 0.100-inch. 500 pound lots	5.30c
Buffalo	5.85c
Chicago (b)	6.10c
Cincinnati	7.15c
Cleveland (b)	5.95c
Detroit	5.80c
New York	5.15c
Philadelphia (c)	5.00c

(b) Net base, straightening, cutting, boxing 1 ton or more.
(c) Plus mill, size and quantity extras.

SWEDISH IRON AND STEEL

New York duty paid

Hollow drill steel	14.00c
Iron bars, rounds	6.25c
Flats and Squares	
Baltimore, New York, Phila.	6.60c

*Plus quantity differentials. †Minus quantity differentials. ††Domestic bars. ‡10 to 24 bundles. **25 or more sheets. *†50 or more bundles.

Light Trade on Coast

Bids on Much Pipe Tonnage Under Consideration—General Buying in Light Volume

SAN FRANCISCO, April 28.—(*By Air Mail*)—Movement of steel products the past week was light and large awards were few. Bids were opened on the aqueducts for the East Bay municipal utility district at Oakland and the Steel Tank & Pipe Co., Berkeley, was low on the basis of electrically welded steel pipe, calling for 8500 tons of plates. An award is not expected immediately as engineers are considering bids received on steel lined concrete pipe, lock-bar and cast iron pipe.

Pig Iron and Coke

In pig iron and foundry coke demand continues confined to small lots for prompt shipment. Specialties shops have a fair volume of business but jobbing foundries are hard pressed to secure business for more than one or two days in advance. No change in prices is noted.

Coast Pig Iron Prices

Utah basic	$25.00 to 26.00
Utah foundry	25.00 to 26.00
*German	24.25
*Indian	24.00 to 25.00
*Dutch	24.50

*C.i.f. duty paid.

Bars, Plates and Shapes

Awards of concrete steel bars this week totaled less than 500 tons and brought the aggregate for the year to 37,148 tons, compared with 17,031 tons for the corresponding period in 1927. The largest letting involved 155 tons for highway work on the Mt. Carmel-Zion highway at Salt Lake City. Pending business, calling for lots of 100 tons or over, is limited. Prices in the bay district are weak and less than 2.00c has been quoted on out-of-stock material. Jobbers of structural shapes and plates are paying 2.35c and 2.30c c.i.f., respectively. Merchant bar bookings seldom exceed one or two carloads.

The Chicago Bridge & Iron Works took 100 tons for a standpipe at Bellingham, Wash. Tabulated figures on the East Bay aqueducts show Twohy Bros. & Shea Inc. low on the general contract for both lines. The Lock-Joint Pipe Co., Ampere, N. J., was low on the Wildcat aqueduct on the basis of steel lined concrete pipe. Over 8400 tons of plates or 30,000 tons of cast iron pipe are involved. Bids will be opened next week by Tacoma, Wash., for 115 tons of 48-inch riveted pipe. Awards so far this year aggregate 12,254 tons, compared with 26,081 tons for the same period last year. Prices are firm at 2.30c c.i.f.

Structural bookings this week were limited and totaled 1340 tons, bringing the aggregate for the year to 56,180 tons, compared with 69,206 tons for the corresponding period in 1927. Bids were opened this week on 380 tons for a warehouse of the port commission at Oakland and the California Steel Co. was low at about $97 a ton erected. Pending business exceeds 12,000 tons and new inquiries include 400 tons for a market building in Oakland and 300 tons for a warehouse at Richmond. Plain material continues firm at 2.35c c.i.f.

Other Finished Material

Awards of cast iron pipe this week aggregated 9256 tons and brought the total for the year to 33,505 tons, compared with 35,532 tons for the same period last year. The United States Cast Iron Pipe & Foundry Co. took 8744 tons for Long Beach, Calif. San Diego placed 210 tons and Oak Harbor, Wash., 132 tons. The bid on cast iron pipe for the East Bay aqueduct was the highest. Over 30,000 tons are involved. Livingston has rescinded the contract just awarded to Robert McNair, Oakland, for 275 tons of centrifugal pipe and is calling for new bids May 14. The Steel Plate Construction Co., Portland, took 100 tons of 1¼-inch galvanized pipe for the Terminal Ice & Cold Storage Co., Salem, Oreg. Approximately 157 tons of steel pipe for a subdivision project at Rialto, Calif., was taken by the Kelly Pipe & Machinery Co., San Diego. Only one inquiry of over 100 tons is up for figures. This calls for 710 tons of 4 to 20-inch lap-welded pipe for Monrovia, Calif., bids on which have been opened.

Slack at Seattle

Small Lots Covered but Much Tonnage Is Pending

Seattle, April 25.—While no large awards have been made this week, several small jobs have been let. The tonnage pending is larger than usual. Fabricating plants are well employed and additional work will be placed within a short time. Prices remain steady and there is less complaint about cutting. Competition of foreign steel also seems less acute.

Pig Iron and Coke

Foundry operations are fair, conditions unchanged during the last fortnight. Business is somewhat spotted as work is scarce with several shops while others are operating to capacity.

Bars, Plates and Shapes

Finished steel is firm and unchanged, with bars and shapes remaining at 2.35c and plates at 2.30c.

No awards of reinforcing material of more than 100 tons were reported this week although small tonnages are giving local mills steady operations. Several jobs are pending amounting to about 2000 tons.

New inquiries for plates include 1138 feet of 48-inch steel pipe, bids April 30, for a water pipe job at Tacoma, totaling about 100 tons. Chicago Bridge & Iron Works, through A. A. Hilton, local representative, has booked more than 300 tons involved in the following tank contracts recently closed: 150 tons in two elevated tanks and one 30,000-barrel oil tank for Zellerbach paper mill at Port Townsend; 100 tons in two elevated tanks for Grays Harbor pulp plant, Hoquiam, Wash.; 50 tons involved in 150,000-gallon standpipe and tank at Bellingham, Wash.; 30 tons in tank for Carlisle Lumber Co., Omalaska, Wash.

J. H. Killman, Santa Cruz, Calif., has received the award for constructing the Kettle Falls cantilever bridge, 1219 feet long. This job involves 1125 tons of structurals, 18 tons of cast steel and 70 tons of reinforcing. The subcontracts are pending. Bids for the substructure of the Spokane avenue bascule bridge, Seattle, will be received May 18. This involves 155 tons of reinforcing. The main structure will require approximately 1700 tons of shapes and bids will be invited within 60 days. Portland Bridge Co. has been awarded the contract at $146,563 for the McKenzie bridge, Lane county, Oreg., involving 250 tons of steel. The Yokum bridge, Umatilla county, Oreg., went to Kuckenberg & Wittman, 75 tons of steel involved. Pooles & McGonigle were low bidders for the Catherine Crook bridge, Union county, Oreg., 28 tons of structurals.

Crane company has been awarded the contract for furnishing approximately 132 tons dipped and wrapped steel pipe for the Oak Harbor, Wash., municipal system. Coupeville, Wash., will receive bids April 28 for a 60,000-gallon steel water tank and 140 tons of cast iron, steel or wood pipe. Local cast iron salesmen report inquiry less than normal for the season.

River Steel Shipments Higher in March

Pittsburgh, May 1.—More iron and steel moved over the Allegheny and Monongahela rivers in March than in February, according to federal engineers. A total of 725 tons was transported over the Allegheny river, compared with 385 tons for February, while the Monongahela river tonnage for March was 77,908 tons, 4448 tons over February. Ohio river transportation of iron and steel, however, was on a lower basis in March than in February by 9690 tons, the March total being 77,945 tons.

Total shipments of all products for the Allegheny, Monongahela and Ohio rivers in March were 118,900, 2,103,877, and 680,548 tons respectively.

Bethlehem Net Gains Over Preceding Quarter

Net earnings of the Bethlehem Steel Corp. for the first quarter amounted to $3,384,718, compared with $2,371,371 in the fourth quarter of 1927 and $5,618,038 in the first quarter of 1927. The value of orders on hand March 31 was $61,393,488, compared with $58,609,006 at the end of the previous quarter and $45,791,990 on March 31, 1927. Operations averaged 79.5 per cent of capacity in the first quarter, compared with 69.5 per cent in the previous quarter and 79.8 per cent during the first quarter of 1927. Current operations are approximately 85 per cent.

Informally discussing the report following the directors meeting, President E. G. Grace said that the average billing price on Bethlehem Steel Co.'s shipments during the first quarter of this year was $2.76 lower than the average during the first quarter of last year. On the other hand, the billing price showed an increase of $0.34 from the last quarter of 1927. Mr. Grace pointed out that had selling prices been the same in the first quarter of this year as in the first quarter of 1927, the corporation would have made $2.60 per share of common stock instead of only $0.94. This comment was taken as indicative of the fact that steel prices now are much too low.

The steel industry feels keenly the lack of railroad equipment buying. If the railroads were buying cars in normal quantities, said Mr. Grace, the industry would be operating at 90 to 100 per cent.

Results of business and operations of the Bethlehem Steel Corp. for the first quarter of 1928, compared with previous quarters, are as follows:

	First quarter 1928	Fourth quarter 1927	First quarter 1927
Total income	$9,574,948	$8,481,825	$11,757,289
Less—Interest charges	2,838,145	2,845,962	2,883,958
Balance	$6,736,803	$5,635,863	$ 8,873,331
Less—depletion, depreciation, etc.	3,352,085	3,264,492	3,255,293
Net income	$3,384,718	$2.371,371	$ 5,618,038
Less—Dividends:			
Preferred stock	$1,697,500	$1,697,500	$ 1,697,500
Common stock			
Total	$1,697,500	$1,697,500	$ 1,697,500
Surplus for the period	$1,687,218	$ 673,871	$ 3,920,538

Open-Hearth Body Meets

The open-hearth committee of the American Institute of Mining and Metallurgical Engineers will hold its spring meeting May 3 and 4 at the Ohio hotel, Youngstown, O. Technical sessions are scheduled for Thursday morning and afternoon and Friday morning. Members will be guests of the Youngstown Sheet & Tube Co. and the Republic Iron & Steel Co. during Friday afternoon.

Sheet Wage Scale Up in Week of May 28

Youngstown, O., May 1.—The wage conference between representatives of independent sheetmakers and of the Amalgamated Association of Iron, Steel and Tin Workers will be held at Atlantic City, N. J., in the week beginning May 28. The bar iron wage conference will be held at the same place the following week.

This arrangement has been announced following negotiations between mill operators and Amalgamated officials. The general impression here and in other districts adjoining is that, aside possibly from the proposed new tin mill wage basis as proposed by the Amalgamated convention recently at Middletown, O., the changes proposed are rather routine in nature.

Since it is proposed by the Amalgamated association in its suggested changes that the market price of a box of tin plate be made the basis of wage negotiations rather than the years-old basis of the average price of black sheets of No. 26, 27, and 28 gage, this may invite some discussion.

Changes Made in Republic Official Lineup

Youngstown, O., May 1.—Following absorption of the Trumbull Steel Co. properties at Warren and Leavittsburg, O., by the Republic Iron & Steel Co., important changes in personnel have been announced by Harry T. Gilbert, new vice president of Republic in charge of sales.

Wilbur B. Topping, son of Chairman John A. Topping, has been made general manager of sales. He has been in charge of sales for Republic, and prior was in the Cleveland and Philadelphia offices.

Alex E. Walker is named assistant general sales manager, and James Holman has been transferred from the company's New York sales office to Youngstown as head of the steel tube department.

F. H. Loomis, formerly general sales manager for Trumbull, has been placed in charge of Republic's strip division. Avery Adams, also of Trumbull's sales force, has been named head of the tin plate division. Frank Rownd, who has been in charge of sheet sales for Republic for a number of years, continues as head of the sheet division; and Walter Hall is the head of the steel bar and specialties division, he having long been in the service of the Republic at Pittsburgh and Chicago.

Several days ago it was announced that Thomas J. Bray Jr. has been appointed assistant general superintendent. He succeeds Caleb B. Davies, who resigned to become vice president of the American Tar Products Co.

Pig Iron Shipments Still at High Average

(*Concluded from Page* 1159)

A Milwaukee melter has closed for 1500 tons of pig iron. The steamer HENRY CORT arrived here yesterday with a cargo of boat iron. Another cargo is due from Cleveland in a few days. A cargo of boat iron is expected from Buffalo soon.

Cincinnati, May 1.—Pig iron sales are small, while specifications on contracts are satisfactory. Seven hundred tons of southern iron was sold in the past week for delivery this quarter. Prices are steady.

St. Louis, May 1.—Pig iron buying has slowed down, barely 4000 tons being booked in the past week. The largest sale was 2000 tons of foundry iron to a builder of railroad equipment for second and third quarter. Foundry iron users are maintaining the recent high average melt. Pig iron shipments are heavy, the chief local producer reporting its April total as larger than in March, or April, 1927. Prices are unchanged, but the general tone is a shade firmer than at the end of March. The leading local producer is quoting $19 to $19.50, f.o.b. Granite City, for both immediate and third quarter delivery.

Philadelphia, May 2.—The pig iron market here is featured by sales of upward of 5000 tons of basic, while two eastern pipe plants have purchased above 15,000 tons of pipe iron. The latter includes 2000 tons of eastern New York iron for shipment by barge to Burlington, Vt. Other surrent business is limited to small lots for early shipment. Prices are unchanged.

The furnace of the Colonial Iron Co., Riddlesburg, Pa., which went out of blast April 9, is receiving a general overhaul and will be blown in some time in July.

Youngstown, O., May 1.—Negotiations of the American Steel Foundries for 3000 to 5000 tons of basic iron for its Allianace, O., plant have lowered the basic market at least from $17 to $16.50 with some difference of opinion whether the valley market is not $16 to $16.50. Officials of the American Steel Foundries at Chicago refuse to discuss details, but it is said on good authority some basic was bought at $16.75, delivered, indicating a furnace price below $16. One maker offering high silicon basic meeting the specification of the melter quoted $17, delivered, or $15.99 its furnace. A steelmaking interest bid $16.50, valley, on the tonnage.

Iron Production Gains; Stacks Drop

ALTHOUGH the output of coke pig iron in the United States in April increased approximately 2800 tons per day over the March daily rate, it seems apparent that operations have reached a peak for this spring and some recession can be anticipated in May. Active blast furnaces on the last day of April were two less than at the close of the preceding month.

Total production in April was 3,179,385 gross tons, or 19,790 tons less than the 3,199,175 tons of the month before. April, however, had but 30 days, as compared with 31 in March. Average daily production was 105,979 tons and an increase of 2780 tons per day, or 2.7 per cent, over the 103,199-ton daily rate of March. In April, 1927, total production was 3,424,377 gross tons and the average daily rate 114,146 tons. The April rate of output, therefore, was 7.15 per cent below the rate of a year ago.

On the last day of April, 194 blast furnaces were making pig iron; the total for March 31 was 196. During the month 2 merchant furnaces were blown out and none blown in; of the nonmerchant or steelworks class, 5 were blown in and 5 blown out or banked. Of the 194 stacks active, 38 were merchant and 156 were nonmerchant.

With the American Iron and Steel institute announcing a new blast furnace capacity figure as of Dec. 31, 1927, it has been necessary to revise slightly the operations figure for all of 1927 and the first three months of 1928. Operations in April, based upon the ratio of production to capacity, were at the rate of 78.0 per cent, as compared with 76.1 per cent in March and 84.1 in April one year ago.

Furnaces blown in during the month were: In Ohio: Haselton No. 5, Republic Iron & Steel Co. In Pennsylvania: Cambria L, Bethlehem Steel Co.; Carrie No. 7 and Clairton No. 2, Carnegie Steel Co. In Indiana: Gary No. 5, Illinois Steel Co.

Stacks blown out included: In Ohio: Steubenville No. 2, Wheeling Steel Corp. In Pennsylvania: Colonial Iron Co.; Edgar Thomson C, Carnegie Steel Co. In Maryland: Maryland F, Bethlehem Steel Co. In Alabama: Woodward No. 1, Woodward Iron Co. In Indiana: Indiana Harbor No. 2, Youngstown Sheet & Tube Co.; Gary No. 11, Illinois Steel Co.

Rate of Operation

(Relation of Production to Capacity)

	1928*	1927*
April	78.0	84.1
March	76.1	82.8
February	73.6	77.4
January	67.8	73.6
December	.....	64.1
November	.....	65.3
October	.....	66.8
September	.....	68.3
August	.....	70.1
July	.....	70.2
June	.....	75.8
May	.....	80.5

***Based on coke pig iron capacity of 49,605,720 gross tons as of Dec. 31, 1927, as compiled by American Iron and Steel institute.**

MONTHLY PRODUCTION

	1928	1927	1926	1925
Jan.	2,855,515	3,101,346	3,319,789	3,372,207
Feb.	2,898,668	2,940,604	2,923,850	3,214,067
Mar.	3,199,175	3,482,107	3,458,171	3,571,422
April	3,179,385	3,424,377	3,438,805	3,211,235
Total 4 mos.	12,132,743	12,948,434	13,140,615	13,368,931
May		3,391,067	3,477,820	2,933,907
June		3,089,726	3,232,478	2,679,045
July		2,954,625	3,224,663	2,665,262
Aug.		2,950,674	3,200,723	2,707,171
Sept.		2,782,500	3,163,269	2,725,885
Oct.		2,812,015	3,334,206	3,017,889
Nov.		2,661,863	3,237,992	3,023,257
Dec.		2,698,208	3,089,175	3,249,057
Total		36,289,112	39,100,941	36,370,404

AVERAGE DAILY PRODUCTION

	1928	1927	1926	1925	1924
Jan.	92,113	100,043	107,039	108,781	97,273
Feb.	99,954	105,021	104,423	114,788	105,987
Mar.	103,199	112,326	111,554	115,207	111,787
Apr.	105,979	114,146	114,627	107,041	107,537
May		109,388	112,187	94,642	84,515
June		102,991	107,749	89,301	67,427
July		95,311	104,021	85,976	57,531
Aug.		95,183	103,249	87,328	60,741
Sept.		92,750	105,442	90,862	68,454
Oct.		90,710	107,555	97,351	79,419
Nov.		88,728	107,933	100,775	83,832
Dec.		87,059	99,651	104,808	95,367
Ave.		99,422	107,126	99,645	84,908

DIVISIONS OF PRODUCTION

1927	Merchant	Non-merchant	Spiegel and ferro-manganese
Jan.	745,766	2,355,580	40,320
Feb.	642,804	2,297,800	31,605
March	762,354	2,719,753	35,483
April	735,385	2,688,992	37,657
May	701,582	2,689,485	38,531
June	714,268	2,375,458	39,764
July	736,707	2,217,918	35,768
Aug.	667,104	2,283,570	30,383
Sept.	651,246	2,131,254	26,712
Oct.	688,880	2,123,135	24,763
Nov.	652,237	2,009,626	24,372
Dec.	660,616	2,037,592	27,809
Total	8,358,949	27,930,163	393,177
1928			
Jan.	649,654	2,205,861	32,510
Feb.	579,298	2,319,370	27,376
March	597,106	2,602,069	34,587
April	573,630	2,605,755	33,520

APRIL PIG IRON

	No. in blast last day of month April	March	—Total tonnage made— Merchant	Nonmerchant	—Totals— April	March
Ohio	43	43	116,782	624,910	741,692	742,880
Pennsylvania	65	64	107,891	912,720	1,019,911	975,637
Alabama	17	18	79,797	116,650	196,447	222,081
New York	14	14	76,695	117,278	193,973	200,557
Illinois	19	19	111,001	249,379	360,380	369,542
Colorado	3	3				
Indiana	15	16				
Maryland	5	6	10,461	450,983	461,444	477,358
Virginia	1	1				
Wisconsin	0	0				
Kentucky	1	1				
Massachusetts	1	1				
Tennessee	1	1	27,172	62,213	89,385	92,207
Utah	1	1				
West Virginia	2	2				
Michigan	4	4				
Minnesota	2	2				
Missouri	0	0	35,400	47,233	82,633	84,326
New Jersey	0	0				
Texas	0	0				
Spiegel and ferro—all states	....	....	8,431	25,089	33,520	34,587
Total	194	196	573,630	2,605,755	3,179,385	3,199,175

March Foreign Trade Gains

Imports Are Up 55.6 Per Cent Over Previous Month, While Exports Rise 19.4 Per Cent—Pig Iron Receipts Make Outstanding Increase, Being Nearly Three Times as Large as February—Boiler Tube Shipments Good

MARCH registered marked increases in foreign trade of the United States in iron and steel products, according to the department of commerce iron and steel division and noted briefly last week in IRON TRADE REVIEW. Exports at 221,935 tons soared 19.4 per cent over the 185,915 tons of February. Imports likewise increased, from 47,628 tons in February to 74,128 tons in March, a rise of 55.6 per cent. The cumulative total for the three-month period also gained, for exports 60,165 tons and for imports 5712 tons, over a year ago.

IMPORTS AND EXPORTS
Gross Tons

	—1928—		—1927—	
	Imports	Exports	Imports	Exports
Jan.	58,635	205,766	63,404	215,235
Feb.	47,628	185,915	49,451	166,128
March	74,128	221,935	61,872	171,094
April	.....	.....	60,374	192,339
May	.....	.....	79,814	202,708
June	.....	.....	69,017	184,364
July	.....	.....	61,112	190,502
Aug.	.....	.....	68,386	175,636
Sept.	.....	.....	58,464	166,352
Oct	.....	.....	52,503	170,255
Nov.	.....	.....	61,882	177,928
Dec.	.....	.....	64,188	168,428
Total	180,391	613,616	750,467	2,180,969

Tonnage of all but four classifications of products exported gained in March, with scrap the only item to lose an appreciable tonnage. Of the products gaining, boiler tube and welded pipe shipments increased 7878 tons, tin plate 4626 tons, galvanized sheets 4212 tons and steel ingots 3842 tons. Scrap declined 3108 tons in March. Nineteen classifications of imports showed gains, ranging from 10,000 tons down to a few tons. Pig iron receipts were 250 per cent over the February total. Structural shapes, ferromanganese and cast iron pipe receipts also showed gains worth noting, each being more than 2000 tons higher than the February totals.

The greater part of the March shipments, or 52.6 per cent, went to North and Central America and the West Indies. South American consumers received 18 per cent and Far Eastern buyers took 22.1 per cent. Canadian receipts were the greatest, 93,678 tons going there. Japan, taking 19,344 tons, was second highest while Philippine islands were third with 10,868 tons.

Belgium was the principal country sending iron and steel products to this market. 22,100 tons was imported by the United States from Belgium in March. The United Kingdom shipping 13,801 tons and France with 13,488 tons were also high. German products imported totaled 10,356 tons.

Exports of scrap declined somewhat in March, due in part to a decrease in receipts by Japan. In February Japan took 12,602 tons, while in March only 5895 tons went there. Canadian receipts of scrap gained 4000 tons in March, while Poland and Danzig received 5262 tons in March and took none the month previous. This was offset by Germany receiving 5249 tons in February and none in March. Canada received the largest

ORIGIN OF PIG IRON IMPORTS
Gross Tons

From	March	Feb.
Norway	50	.....
Netherlands	1,929	2,154
United Kingdom	10,748	50
Canada	59	93
Mexico	31	60
British India	3,338	3,794
Belgium	.....	197
Sweden	.....	39
Totals	16,155	6,387

ORIGIN OF IRON ORE IMPORTS
Gross Tons

From	March	Feb.
Spain	250	5,000
Brazil	8,000	1
Canada	217	36,210
Cuba	47,200	33,500
Chile	90,800	121,300
Algeria and Tunis	9,693	28,656
France	30	.....
Sweden	6,383	.....
Jamaica	81	.....
Czechoslovakia	.....	1
Germany	.....	315
United Kingdom	.....	35
Australia	.....	4,500
Totals	162,654	229,578

ORIGIN OF MANGANESE IMPORTS
(Concentrates)
Gross Tons

From	March	Feb.
Germany	3	.....
United Kingdom	12	.....
Brazil	10,187	6,643
British India	2,584	4,400
Soviet Russia in Europe	.....	7,169
British South Africa	.....	3
Totals	12,786	18,215

ORIGIN OF FERROMANGANESE IMPORTS
Gross Tons

From	March	Feb.
France	16	20
Sweden	43	.....
Norway	1,573	.....
Italy	7	.....
United Kingdom	1,971	594
Canada	1,056	411
Totals	4,666	1,025

ORIGIN OF IMPORTS
Gross Tons

From	Steel bars	Steel scrap	Cast iron pipe	Ingots, blooms, etc.
Austria	43	.....	.....	.....
Belgium	6,825	.....	1,320	1,468
France	1,438	.....	4,859	359
Netherlands	25	.....	.....	.....
Sweden	938	.....	.....	148
United Kingdom	154	.....	.....	3
Germany	481	99	34	124
Norway	.....	1	.....	.....
Canada	.....	2,298	64	.....
Italy	.....	.....	3	.....
Other countries	87	124	34	10
Totals	9,991	2,522	6,280	2,112

IMPORTS OF IRON AND STEEL
Gross Tons

Item	Mar. 1928	Feb. 1928	January through March 1928	January through March 1927
Pig iron	16,155	6,387	33,669	21,235
Ferromanganese and alloys (1)	4,666	1,025	10,875	6,596
Ferrosilicon (2)	147	293	845	3,141
Ferrochrome (3)	50	107	188	359
Scrap	2,522	2,019	9,215	15,680
Iron slabs	3	1	4	..
Steel ingots, blooms, billets, etc.	2,112	1,034	4,465	4,035
Steel bars	9,991	8,810	26,677	22,987
Iron bars	27	284	460	1,306
Wire rods	2,135	2,185	3,399	3,907
Hoops, bands and scrolls	2,949	1,720	6,352	7,047
Boiler and other plate	308	14	380	840
Sheets, skelp and saw plate	2,708	1,490	8,490	3,378
Tin plate	24	6	69	62
Structural shapes	17,131	13,450	41,661	36,736
Rails and splice bars	940	181	4,271	4,885
Cast iron pipe	6,280	4,218	13,276	24,669
Other pipe and tubes	3,504	2,396	7,946	11,543
Barbed wire	400	236	986	1,882
Round iron and steel wire	386	281	961	823
Steel telegraph, telephone wire	....	....	46	24
Flat wire, strip steel	240	213	588	661
Wire rope and strand	138	174	406	564
Other wire	94	53	188	105
Nails, tacks, staples	709	756	1,646	1,256
Bolts, nuts, rivets, washers	9	31	65	73
Castings and forgings	500	264	1,263	885
Total	74,128	47,628	180,391	174,679

(1) Manganese content
(2) Silicon content
(3) Chromium content

IMPORTS BY COUNTRIES OF ORIGIN
Gross Tons

	March 1928	January through March 1928	January through March 1927
Austria	44	108	157
Belgium	22,110	54,488	54,821
Czechoslovakia	676	831	509
Denmark	70	204	61
France	13,488	29,326	30,831
Germany	10,356	27,343	37,096
Italy	63	73	272
Netherlands	2,323	7,042	7,835
Norway	1,597	2,827	4,530
Sweden	2,257	5,382	4,648
United Kingdom	13,801	23,898	7,379
Canada	3,970	12,184	15,025
Mexico	31	121	105
British India	3,338	12,766	5,099
China	1	1	4
Japan	3	31	13
Bulgaria	.....	2	.....
Poland and Danzig	.....	2,752	47
Switzerland	.....	1	1
Panama	.....	381	19
Jamaica	.....	628	.....
Hong Kong	.....	2	2
Other countries	.....	.....	2,254
Totals	74,128	180,391	174,727

tin and terne plate exports, with Japan second. Canada and United Kingdom led in receipts of steel bars. Shipments of rails to China were the heaviest in that classification, more than 4000 tons going to that country. Brazil and Chile also received substantial tonnages.

Belgium, sending 6825 tons of steel bars to the United States, led in that classification with France, shipping 1438 tons, coming second. Sweden sent 938 tons. Imports of steel scrap from Canada totaled 2298 tons. France led the other countries in shipments of cast iron pipe to the United States, with 4859 tons of that product coming here in March. Belgium was second in that classification, and led the shipment of ingots, blooms, etc., by sending 1468 tons.

DESTINATION OF MARCH IRON AND STEEL EXPORTS

Gross Tons

	Rails	Galvanized sheets	Plates not fabricated	Tin Terne plate	Steel sheets black	Barbed wire	Steel bars	Steel scrap
Argentina	.....	535	1	2,260	.....	1,208	.....	.....
Australia	.....	21	1	.....	92	25	.....	.....
Brazil	2,514	2,434	1	1,045	.....	1,675	193	.....
British India	.....	860	.....	.....	.....	.....	.....	.....
British S. Africa	.....	.....	.....	.....	.....	197	.....	.....
Canada	699	3,072	10,784	4,439	6,533	610	7,182	14,058
Central America	1,155	513	377	.....	8	445	582	.....
Chile	2,409	41	67	311	.....	.....	.....	.....
China	4,153	245	.....	2,647	.....	.....	287	628
Colombia	865	389	4	21	.....	71	.....	.....
Cuba	46	510	1	650	.....	370	598	.....
Dutch East Indies	.....	881	.....	.....	.....	.....	.....	.....
Dutch West Indies	28	.....	.....	.....	.....	.....	.....	.....
Europe	.....	.....	42	.....	529	.....	75	.....
Other Europe	.....	.....	.....	581	.....	.....	.....	.....
Italy	.....	.....	.....	2,142	.....	.....	.....	.....
Japan	1,462	548	.....	2,769	4,978	.....	39	5,895
Mexico	1,372	563	78	2,018	160	468	210	179
Norway	.....	136	.....	.....	.....	.....	.....	.....
Peru	650	.....	7	11	46	.....	231	.....
Philippine Islands	.....	.....	591	403	97	410	347	228
Poland and Danzig	.....	.....	.....	.....	.....	.....	.....	5,262
United Kingdom	.....	.....	.....	.....	101	.....	1,586	79
Uruguay	.....	.....	.....	541	.....	.....	.....	.....
Venezuela	59	.....	.....	19	.....	.....	.....	.....
	15,798	15,531	12,136	22,755	13,292	6,587	12,005	26,510

EXPORTS OF IRON AND STEEL

Gross Tons

Item	Mar 1928	Feb. 1928	January through March 1928	January through March 1927
Pig iron, not including ferro-alloys	4,356	3,494	12,253	9,808
Ferromanganese and spiegeleisen	69	2,069	2,139	107
Scrap	26,510	29,618	85,504	27,300
Ingots, blooms, skelp, etc	11,710	7,868	25,252	12,096
Iron bars	222	175	792	1,367
Steel bars	12,005	10,468	30,566	31,504
Alloy steel bars	1,258	1,017	2,796	1,395
Wire rods	2,134	1,345	7,449	5,152
Plates	12,787	11,195	33,991	29,347
Galvanized sheets	15,531	11,319	37,947	44,362
Black steel sheets	13,292	13,291	44,135	48,647
Black iron sheets	1,151	1,069	3,256	4,752
Hoops, bands and strip steel	5,329	3,786	12,434	13,552
Tin plate, terne plate, etc	22,755	18,129	60,552	97,468
Structural shapes, plain material	15,148	13,406	38,366	25,146
Structural materials, fabricated	5,915	4,254	16,729	15,929
Metal lath	479	341	1,162	1,074
Steel rails	15,798	15,431	54,403	55,844
Rail fastenings, switches, frogs, etc	6,271	3,512	19,153	7,223
Boiler tubes and welded pipe	23,214	15,336	53,845	77 913
Malleable iron screwed pipe fittings	854	510	2,856	2,411
Cast iron screwed pipe fittings	610	387	1,475	1,443
Cast iron pressure pipe and fittings	1,976	960	4,504	2,721
Cast iron soil pipe and fittings	1,356	1,057	3,230	2,570
Plain wire	5,072	3,212	12,070	7,175
Barbed wire and woven wire fencing	7,076	4,641	17,031	7,871
Wire cloth and screening	178	114	474	583
Wire rope	442	552	1,479	1,103
Insulated wire and cable	60	33	147	142
Other wire and manufactures of	986	645	2,321	2,098
Wire nails	1,175	1,035	3,687	1,745
Nails, other than wire	838	627	2,129	1,675
Tacks	90	65	227	231
Horseshoes	38	19	112	71
Bolts, nuts, rivets, except track	1,119	944	2,930	2,696
Car wheels and axles	1,212	1,416	3,560	2,867
Iron castings	1,393	1,206	3,664	3,389
Steel castings	914	896	2,517	1,410
Forgings	612	473	1,479	1,264
Total	221,935	185,915	613,616	553,451

DESTINATION OF EXPORTS

Gross Tons

Country of destination:	March 1928	January through March 1928	January through March 1927
North and Cent. America, West Indies	116,916	288,724	242,371
Canada and Newfoundland	93,678	231,485	182,093
Cuba	6,364	16,800	21,920
Mexico	9,414	20,002	19,906
Guatemala	447	4,364	2,544
Panama	2,478	4,507	3,899
Salvador	219	731	1,247
British W. Indies	743	1,762	3,026
Other W. Indies	1,302	4,759	3,973
Other Cent. America	2,271	4,314	3,763
South America	39,803	104,239	111,422
Argentina	8,113	23,568	24,783
Brazil	9,421	20,211	24,779
Chile	5,860	18,120	6,102
Colombia	6,083	16,825	22,700
Peru	4,095	8,269	3,956
Uruguay	841	1,799	4,595
Venezuela	4,694	13,970	23,932
Other S. America	696	1,477	575
Europe	14,467	39,784	35,028
Belgium	616	3,699	793
France	328	817	670
Greece	45	117	800
Italy	2,328	4,011	4,108
Netherlands	164	796	1,023
Russia	20	1,222	1,149
United Kingdom	4,036	13,262	20,069
Other Europe	6,921	15,860	6,416
Far East	49,015	176,519	160,167
British Malaya	851	1,921	4,250
China	9,451	32,957	22,253
Dutch East Indies	2,340	6,403	12,025
India and Ceylon	3,492	9,620	11,728
Japan and Chosen	19,344	91,884	80,748
Kwangtung	344	1,870	4,517
Philippine Islands	10,868	25,484	11,455
Australia	1,296	4,478	7,776
New Zealand	54	496	475
Other Asia and Far Eastern Markets	975	1,406	4,940
Africa	1,734	4,350	4,463
British S. Africa	794	2,140	1,513
Egypt	685	1,419	1,411
Mozambique	38	208	1,149
Other Africa	217	583	390

M. A. Hanna Has Loss

The M. A. Hanna Co. reports a net loss of $111,766 for the first quarter of 1928. This compares with a net profit of $33,749 in the corresponding period of 1927.

Exports of Metalworking Machinery

(In number except where otherwise specified)

	March 1928	March 1927	January through March 1928	January through March 1927
Engine lathes	95	44	230	133
Turret lathes	29	15	85	44
Other lathes	33	35	142	112
Vertical boring mills and chucking machines	12	5	26	30
Thread-cutting and automatic screw machines	90	64	230	202
Knee and column type milling machines	33	11	87	66
Other milling machines	47	27	179	74
Gear-cutting machines	26	44	81	72
Vertical drilling machines	75	21	135	82
Radial drilling machines	16	10	47	20
Other drilling machines	80	323	179	466
Planers and shapers	37	51	113	109
External cylindrical grinding machines	81	49	254	158
Internal grinding machines	38	25	119	75
Metalworking tool-sharpening machines	48	120	138	249
Other metal-grinding machines, pounds	167,358	137,562	555,629	305,428
Sheet, plate metalworking machines, pounds	733,313	365,132	1,790,419	1,015,122
Forging machinery, pounds	226,632	280,644	892,867	957,989
Rolling-mill machinery, pounds	448,581	940,131	1,696,738	2,081,195
Foundry and molding equipment, pounds	1,037,706	506,987	2,263,216	1,623,852
Other power-driven metalworking machinery and parts, pounds	788,873	.....	2,143,480	.....
Pneumatic portable tools	1,928	1,498	5,003	4,024
Other portable and hand or foot operated metalworking machines and parts, pounds	88,962	52,387	220,626	173,590
Chucks for machine tools	744	2,174	2,639	4,949

Metal Trades Convention in Stand on Important Industrial Problems

INDUSTRIAL training, budgeting and industrial legislation were among the more important topics discussed at the thirtieth annual convention of the National Metal Trades association, Hotel Astor, New York, April 25-26. Other features dealt with incentive plans of wage payment for foremen and supervisors, mechanization and unemployment, and open shop problems.

Exceptionally good labor conditions and a trend toward better business were cheering notes. Replies to a questionnaire showed that 52 per cent, or 218, regarded the outlook for the next six months as good, while 6 per cent, or 25, regarded the prospects as excellent; 37.3, or 136, considered the outlook as fair, and 4.3 per cent, 18, as poor. The election of officers, the annual banquet and certain other features not included in this report were noted in last week's issue of IRON TRADE REVIEW.

Duties of Foremen and Management Defined

AN INTERESTING feature was a demonstration of a foreman's conference, with George Seyler, vice president, Lunkenheimer Co., Cincinnati, in charge. More than 20 members volunteered to participate, and two subjects of general interest were taken up, "Some Things Management Expects of Foremen," and "Some Things Foremen Expect of Management." Lists of the needs of the foremen and the management, as proposed and registered on a blackboard, are shown in the accompanying boxes.

H. W. De Bruin, Jeffrey Mfg. Co. Columbus, O. emphasized the need for proper wage incentive for the foremen and outlined some plans now in operation. The majority, the speaker declared, go rightfully on the theory that a company should pay salaries in proportion to a man's proper standard of living and in proportion to his standing with the company, following with extra compensation based on results obtained in his division, either on a monthly, quarterly, semiannual or annual basis.

Mr. De Bruin believed that the foreman should be afforded an opportunity for advancement, continuous employment, and to share in the financial success of the company proportionate to his efforts. He emphasized such points as training foremen for assuming complete responsibility in his department also the inadvisability of attempting to pay a foreman a bonus just because those under him are increasing production on account of some wage incentive. It is difficult, he added, to base a foreman's bonus on tangible results, but unless this is done the results will be disappointing.

"To be effective," the speaker continued, "a bonus plan should give opportunity to increase earnings from 10 to 40 per cent."

Outlining the wage incentive plan for foremen at the Jeffrey plant, Mr. De Bruin said a budget was fixed on the basis of normal operation. If actual expense is kept within its figure, a bonus amounting to 10 per cent of basic salary is paid. If the productive payroll is reduced or increased, the budget expense is revised in proportionate amount. In addition to the initial bonus of 10 per cent, one-half of the amount saved on actual expense, under adjusted budget, is distributed pro-rata to the foremen. This, the speaker stated, has aided in keeping expenses at a relatively lower figure than they have ever been before.

A budget also was established for the amount of material in process for normal shipments. An increase or decrease in the volume of business will change the budget in proportion to the change in productive pay. If the amount of work in process is kept within the limits of the budget, a bonus amounting to 10 per cent of the basic salary is paid. This part of the plan, Mr. De Bruin declared, has helped to reduce the investment in materials in process at least 50 per cent.

A paper prepared by G. Heding, Morkrum-Kleinschmidt Corp., Chicago, dealt mainly with a group bonus system employed at the Chicago plant. Originally, the speaker declared, a system of individual bonuses was employed but was given up, because it complicated the clerical system and the time and cost system and made necessary the checking of elapsed time on operations. The group system, it was declared, not only is simpler in operation but makes for much better co-operation and harmony in a department. The plan has been highly satisfactory notwithstanding the fact that the company manufactures a product requiring al-

Management Expects of Foremen:

1. *Be a leader*
2. *Co-operate*
3. *Low costs and quality*
4. *Be an organizer*
5. *Loyalty*
6. *Square deal*
7. *Discipline*
8. *Make his schedule and plan his work*
9. *To have knowledge of work in his department*
10. *Pride*
11. *Neat and orderly*
12. *Be healthy*
13. *Assume responsibility*
14. *Be safe*
15. *Not a "yes" man*
16. *Make suggestions*
17. *Carry out company policies*
18. *Be on job*
19. *Have initiative*
20. *Be open minded*
21. *To increase his knowledge*

Foremen Expects of Management:

1. *Adequate tools*
2. *Clear instructions and complete information*
3. *Leadership*
4. *Co-operation*
5. *Square deal*
6. *Support of management*
7. *Encouragement*
8. *Confidence*
9. *Be open minded*
10. *Fair compensation*
11. *Proper help*
12. *Proper working conditions*
13. *Proper material*
14. *Chance to advance*
15. *Constructive criticism*
16. *Steady job*
17. *Human interest*
18. *Opportunity to express himself*
19. *Consistent policy*
20. *Responsibilities to be clearly defined.*

most 20,000 different machine parts, made in varying quantities.

In the operation of the system standard-time is determined by adding to the time-study time allowance for fatigue, power feed machine, hand feed machine, or all hand work, as the case may be, personal needs and incentive. The incentive is based on paying a group of employes working at normal speed a bonus of 20 per cent of their straight hourly rates, provided the group had not wasted any of the incentive time allowance.

Bonus periods are one week, the speaker stated. The total amount of work finished multiplied by the standard-time rates gives the total standard output hours for the week. These output hours divided by the total actual hours, obtained from time clock records, gives the efficiency of the group in percentages. From this percentage figure the bonus percentage is readily obtained.

Standard-time rates are in decimal hours and while it is not possible, the speaker stated, for a group to figure readily their bonus earnings, a glance at the standard-time rate indicated on the job ticket, along with a mental shift to the decimal point allows a conversion of the decimal rate hour to one of time per 10, 100, or 1000 units. This enables the operator, also the supervisor to know the relative speed at which the job is progressing. Paying bonuses on a percentage basis from standard-time rates eliminates the necessity of changing rates to compensate for fluctuating prevailing wage rates, the speaker stated.

The foreman of a department split into two or more groups is given a percentage representing the average of the percentages of the groups. Manufacturing costs of units are, under the standard-time system, easily obtained. Multiplying standard-time figures by a standard hour value, which includes both direct labor and overhead expense, plus raw material costs, provides an accurate manufacturing cost.

Exceptionally good labor conditions were experienced by member companies during the past year. President Paul T. Norton, in his annual address, asserted that there had been no strikes and that, in fact, there had only been nine strikes during the past six years.

The president pointed to an improvement in business as indicated by answers to a questionnaire issued by the association. Comparing conditions now with a year ago, 181 members regarded business as better; 124 as unchanged, and 122 as worse. Of 439 members responding, 173 reported business as good; 37 as excellent; 186 as fair; and 43 as poor. Regarding labor shortage, 273 reported none, 88 a scarcity of skilled machinists and 66 a scarcity in other lines.

President Norton condemned the effort of labor groups to have the antitrust laws modified to allow them greater legal latitude.

Importance of industrial budgeting was stressed by Howard Toonley, president of the Walworth Co., Boston. It has been essential, he said, in the development of science in production and it is essential in the science of merchandising, which now is just only being taken up by industry in general. He asserted that with the exception of a very few large manufacturers such, for instance, as the General Motors Corp. and the National Cash Register Co., both of whom have specialized products, all manufacturers are very much in the primary class as far as merchandising is concerned, and before any real step can be taken an adequate budgeting system must be developed.

BE IT RESOLVED, that the National Metals Trades association, in convention assembled, having confidence in the rights of the individual as constitutionally provided, and feeling that the present efforts to limit these rights and to restrict the functions of our federal courts are not truly representative of American ideals, urge that the existing equity power of the federal courts should be continued."—Resolution adopted by National Metal Trades association, in New York convention.

Budgeting must be flexible to be workable and at best, he said, it can only be an approximation. Mr. Coonley traced the development of the budgeting system at the Walworth plant and asserted that it has not only enabled them to keep close check on expenditures and to formulate policies, but to forecast the future of the business over the course of the year with satisfactory results. The speaker said that since the company had started making forecasts in 1922 they have not varied more than 10 per cent in accuracy.

One of the first steps, he said, in forecasting over a series of months is to estimate the demand. This he believes could be done easily in most cases by a study of previous records and a consideration of current factors involved. To arrive at an estimate concerning demand it is necessary to chart the course of prices. Prices, according to the experience of the speaker, cannot be charted as closely as demand, but close enough to be imminently satisfactory. Forecasting the costs of production is possibly the easiest of the three, he said.

All estimates as to the future, as first made by theorists are subjected to criticism by the practical heads in the organization, and are checked up from month to month for whatever slight changes may be necessary. One advantage of a proper budgeting system is that it provides a means for stabilizing emloyment and reducing turnover. It enables a company to meet seasonal fluctuations in demand and to govern inventories accordingly, and provides an excellent opportunity for expense control, the speaker asserted.

Charles J. Bullock, Ph. D., director of the Harvard Economic society, Cambridge, Mass., in discussing business profits, asserted that during the 80's and early 90's, manufacturers of standard, staple products made a conservative 6 per cent, according to his impression. From 1898 to 1914, which period was largely one of rising commodity prices, manufacturers of staple products made a conservative 8 per cent. This latter figure, the speaker believed, has been supported in an important measure by a survey recently conducted by another economist which showed that 35 per cent of the leading companies made during that time a profit of only a little more than 8 per cent. Dr. Bullock explained that his own estimates were more or less tentative and that he had not as yet had an opportunity to complete his research.

The 35 companies alluded to in the period from 1922 to 1927 made approximately 10.5 per cent. The speaker took these figures as indicating that much of the complaint of lack of profits by industry generally was not fully justified, although admitting that mixed conditions have prevailed in various industries. He believed that one cause for complaint has been due to the fact that manufacturers have been prone to compare current profits with the abnormally high profits made during the war.

Magnus W. Alexander, president, national industrial conference board, New York, commenting briefly on the subject of profits, appeared to believe there was cause for much of the complaint about lack of profits in recent months and cited figures which indicated that by far the great bulk of the profits made in the past few years has been made by a relatively few of the larger concerns, such pos-

(*Concluded on Page* 1182)

Welders Adopt Test Standards

American Welding Society at Annual Meeting in New York Takes Definite Action on Specifications

Machinery Set Up for Making Series of Tests of Welding Structural Steel—40 Fabricators Co-operate

ADOPTION by the American Welding society of a detailed set of specifications for the welding of standard test specimens, was an outstanding accomplishment of the three-day annual convention of the society held at the Engineering societies building, New York, April 25-27. The attendance was approximately 200. Technical papers and committee reports featured the meeting. Fred T. Llewellyn, engineer, United States Steel Corp., New York, was elected president. Other officers were elected as shown in the accompanying box.

Of particular interest was an exhaustive report on qualification of welders and the inspection and supervision of welding. The annual banquet was omitted this year and in its place there was a stag dinner.

Structural Steel Welding Develops Rapidly

QUESTIONS of building codes and standard specifications for welding of structural steel occupied a large part of the program. The adoption of specifications in this field marked a significant forward step in the work of the association.

The general structural steel committee of the American Welding society sometime ago appointed four subcommittees. The first of these which had to deal with welding literature submitted its report a year ago and this has since been published. The second committee, which was concerned with standard tests, this year submitted a detailed program of tests which was approved by the general committee. The third subcommittee this year submitted specification covering the qualifying of welders and inspection and supervision of welders. This report with minor changes was also approved by the general committee. The fourth subcommittee, which was a ways and means committee, reported this year that it had secured approximately $22,000 and a pledge of willingness to co-operate from more than 40 fabricators throughout the country.

Series of Tests Planned

It would be difficult to exaggerate the importance of this whole procedure to the structural welding industry. Machinery has been set up for the making of a large number of tests under carefully regulated conditions in many plants of the country. This means that 40 fabricators will receive first hand information covering the possibility of welding in the building industry.

One of the most important sessions of the convention was the technical session Thursday afternoon at which the newly elected president, F. T. Llewellyn, was chairman. At this session, a comprehensive progress report covering the entire field of welding, on the matter of qualification of welders and inspection and supervision, was presented by H. H. Moss, service engineer, Linde Air Products Co., New York. This report was prepared in co-operation with A. M. Candy, engineer, arc welding engineering department, Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., and covered a total of 10 or 12 typewritten papers.

It prescribed the method and procedure for nearly all phases of welding, in connection with the qualification of welders and inspection and supervision. In the discussion following, Mr. Llewellyn pointed out that the question of design and of qualification of designers had been omitted and suggested that these be included.

Many written papers were offered in discussion of this report. E. E. Shanor, vice president, Petroleum Iron Works Co., Sharon, Pa., said that electrically-welded pipes for gas mains and oil lines were now well established. He pointed out that welding of pipes was a process admirably adapted to automatic machine operation. Automatic machines he said, eliminate the uncertainties of hand work and in his plant, it is found that the machine tends to speed up hand work in adjacent sections of the shop. Pipe welding has the advantage of being done in a horizontal position, according to the speaker.

Apprentices Receive Training

In describing the training of welders in his shop, he said that conditions differed due to different sized plants. In a large plant where the welders are constantly under the supervision of a foreman, exhaustive qualifying tests are not as important. He placed more importance on general integrity and intelligence than on specific proficiency in welding. A welding apprentice system is in operation at his plant. The apprentices are put through a general six weeks' course of shop practice and testing work before they start on any actual

New Officers

AMERICAN WELDING SOCIETY

President

F. T. LLEWELLYN
Research engineer, United States Steel Corp., New York

Senior Vice President

A. E. GAYNOR
J. A. Roebling's Sons Co., New York

Vice President, Middle Western Division

ERNEST LUNN
Electrical engineer, Pullman Car & Mfg. Corp., Chicago

Vice President, Middle Eastern Division

J. W. MEADOWCROET
Assistant works manager, Edward G. Budd Mfg. Co., Philadelphia

Vice President, New York and New England Division

H. P. PEABODY
Salesman, J. A. Roebling's Sons Co., Boston

Directors

A. M. CANDY, engineer, arc welding engineering, department, Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.

J. H. DEPPELER, chief engineer and superintendent, Metal & Thermit Corp., Jersey City, N. J.

E. H. EWERTZ, consulting mechanical engineer, New York

S. W. MILLER, consulting engineer, Union Carbide & Carbon Research Laboratories, Inc., Long Island City, N. Y.

welding. Mr. Shanor described in considerable detail, the practice at his plant in producing large welded pipe sections. Heavy plates for these sections are planed to exact dimensions with beveled edges to produce a single vee for welding. The weld metal is deposited at a definite rate along the bottom of the vee and is peened with a hammer immediately following the weld. The weld is then cleaned and a second layer is applied. This also is peened. Then a third layer is applied which is not peened. After this, the bottom of the weld on the inside of the pipe is chipped and a bead is applied from the inside. By this method, Mr. Shanor said, they consistently secure the full strength of the base metal.

G. A. Caldwell, Mississippi Valley Structural Steel Co., Decatur, Ill., spoke of the resistance in industry to welding and said this must be overcome by persistent educational methods. He emphasized the importance of correct design for welding in structural steel work, and said that character was one of the requirements of a good welder. He asked about the speed of welding. He didn't think this was covered by the progress report. Structural steel work, he said, in some cases has given way to concrete construction because of lower cost. Now, welding, by lowering the cost of structural steel work may be expected to bring back into the field of steel, some of the work which has been lost to concrete. He described the use of automatic machines for welding in his shop.

Gas and Arc Welders Used

W. C. Beakley, Whitlock Coil Pipe Co., Hartford, Conn., said that in his shop they use the oxyacetylene torch, electric arc welders and electric resistance welders and said that each process has its distinct field. He said they figure on getting from 50,000 to 60,000 pounds per square inch from good welders. The work is tested at two and three times the working pressure and given a hammer test at two times the working pressure and then held at this prssure for 15 to 20 minutes. He said they had definite instructions never to weld over tacks.

A. O. Miller, vice president, Reeves Bros., Alliance, O., described the manufacture of tanks 35 feet long, 7½ feet diameter and made of 1¼-inch plates. He said that in his shop, they took their weld as from among old and trusted employes.

Some of the welding fundamentals covered in the H. H. Moss report, include the preparation of joints, suitable rods, suitable materials, suitable welders, proper welding tools and equipment, proper supervision and intelligent interpretation of specifications. Mr. Moss said that the boiler code committee of the American Society of Mechanical Engineers had requested specifications, covering unfired pressure vessels. He said a subcommittee had been appointed by the American Welding society to take care of this work. Another subcommittee had been appointed to prepare specifications covering welding of industrial piping.

C. E. Loos, American Bridge Co., New York, said he thought standards should be set up for working pressures for each type of joint and suggested the use of a hammer mark on the part welded for identification of the welder.

The pressure vessel committee of the American Welding society, working in co-operation with the American Society of Mechanical Engineers, appointed a subcommittee to prepare a program of tests, and a second subcommitte to prepare specifications covering procedure of such tests. Both of these committes submitted written reports. In the discussion covering these reports, the boiler code committee suggested certain modifications. Members of the general pressure vessel committee had further modifications to suggest and finally both reports were referred back to the respective subcommittees for revision.

In the case of the report covering program of tests, it was suggested that the number of tests and their scope be reduced in order to lower expense. The report submitted covering procedure tests was accepted in principle but was referred to the committee for certain additions. The pressure vessel committee had been working under a handicap because of lack of financial assistance. To change this situation, a new subcommittee was appointed to interview manufacturers and others personally and secure tanks for test purposes and also money donations.

An interesting description of a method of building up battered rail ends by the use of the arc weld was presented by Merrill H. Turner, Electric Railweld Service Corp., Chicago. Briefly, battered and worn down rail-ends are first chipped down to hard metal and then built up by electric arc welding to a level somewhat above the original rail level. Then, this is ground down by a special grinding device to the proper level. Following this grinding, a hand grinder smooths down the edges and gives the proper form. It is claimed that the welding heat is so localized, that there is no softening or annealing of the rail end.

Other technical papers presented included "Welding Corrosion Resisting Steel Alloys," by W. B. Miller, Union Carbide & Carbon Research Laboratories Inc., Long Island City, N. Y. and, "Welding the Ford Car," by M. L. Eckman, welding supervisor, Ford Motor Co., Detroit.

The nomenclature committee of which J. W. Owens, director of welding, Newport News Shipbuilding & Dry Dock Co., Newport News, Va., is chairman, held a long session in which many phases of this complicated subject were discussed. A report of the committee in preliminary form was accepted in substance and referred back for completion.

Committee Activity

PRESSURE vessel committee, E. H. Ewertz, chairman. Report of subcommittees presented and referred back to committees for revision. New subcommittees on ways and means appointed to secure funds and the co-operation of tank manufacturers.

Structural steel welding committee, J. H. Edwards, chairman. Report of subcommittees presented. Detailed program of standard tests approved. Specifications covering qualifying of welders and inspection approved in substance. Committee on ways and means reported $22,000 *subscribed and co-operation of more than* 40 *fabricators. A new finance subcommittee of four appointed to authorize expenditures and provide machinery of procedure.*

Nomenclature committee, J. W. Owens, chairman, preliminary reports presented and discussed at length and referred back to committee.

Superior Dock Completed;

Duluth, May 1.—Rebuilding of the Great Northern Railway Co.'s No. 1 iron loading dock at Superior, Wis., has been completed and it will function this season as a full unit. The original dock was rebuilt in three sections, and used as rebuilt, the outer third being the last to be finished. The dock is the largest of the Great Northern's at Superior. It is of concrete and steel and has 374 pockets with a storage capacity of 120,000 tons of iron ore.

The Mahoning mine at Hibbing operated by Pickands, Mather & Co., was the first of the independents' open pits to get underway for the season. Night and day crews are working.

Electrochemists Discuss Problems Related to Electric Heating

MANY phases of electric heating in industry were discussed at the annual meeting of the American Electro Chemical Society, held last week at Hotel Stratfield, Bridgeport, Conn. A feature of the meeting was a round table discussion on refractories headed by Dr. B. D. Saklatwalla, head of research department, Vanadium Corp. of America, Bridgeville, Pa.

More than 200 members and guests were registered from many parts of the world. The list included representatives from Germany, Japan, Switzerland and Canada. One whole day of the three-day meeting was given over to chemical production of electricity. Inspection trips were made to many Bridgeport plants, including the Bridgeport Brass Co., General Electric Co., Remington Arms Co., American Tube & Stamping Co., and the Dictaphone Co. This is the twenty-sixth year in the history of the society. The fall meeting will be held at Charleston, W. Va. On Friday evening, a dinner and entertainment was held at "The Farm" on Long Island Sound.

New officers were elected at the annual business meeting conducted on Friday morning. The names of those selected appear in the accompanying box.

Refractories Trail Furnace Design

The round table discussion of refractories brought out the fact that the development of refractories for high-temperature electric furnace work has not kept pace with the design of electric furnaces, with the result that electrochemists engaged in electric furnace operation, especially those working with copper in induction furnaces, are eagerly seeking better refractory material. In introducing the subject, the chairman, Dr. B. D. Saklatwalla, listed the principal properties desired in a good reflectory. These include, refractoriness, resistance to slagging, resistance to metal infusion, resistance to oxidation, resistance to combining with the metal in any way, resistance to spalling, low heat conductivity, low electrical conductivity and high strength.

In answer to a question as to what refractories have been developed for use by electric furnaces in melting copper, several different materials were suggested. One was magnesia cement supplied in dry form and rammed in at the plant. Another was a 76 per cent alumina material electrically fused. The relative merits of ramming and performing of refractories were discussed at length. It seemed to be the concensus of opinion, that, with the present stage of development of refractories, the rammed-in lining was apt to be better adapted to induction furnace work on copper.

How Linings Are Seasoned

Many electric furnace operators gave their experiences with different linings. One man told of his practice of seasoning a lining for a period up to six months before putting it into production. Several manufacturers said that they started production very slowly with a new lining, usually over a period of three or four days making the first heat without any production. One manufacturer uses a wash heat consisting of lime and silica sand to slag out a new lining. Afterwards, this is washed down. An electric steel manufacturer pointed out that it was often a disadvantage to have a refractory too low in heat conductivity. He said that a higher conductivity would keep the refractory temperature lower, due to radiation. In making up refractory linings, one of the difficulties is with the bond. If this burns out, it leaves the refractory porus. To overcome this, it was suggested to use a bond consisting of a highly pulverized product of the refractory material itself.

Robert M. Keeney, industrial heating engineer, Connecticut Light & Power Co., Waterbury, Conn., presented an illustrated paper on annealing of nonferrous metals in the electric furnace. He said that the problem of heat for annealing nonferrous metals and alloys, was an economic one. Items which influence over all costs, he said, are pickling, fuel, power, labor, maintenance, handling, rejections, tool charges and capital charges. Very often, a manufacturer is misled as to the relative costs of different methods of heating by not considering all of these various items. Simple comparisons of the B.t.u. cost of electricity, oil, or coal, gives an erroneous impression, according to the speaker, because no allowance is made for higher furnace efficiency, lower labor costs, elimination of spoilage, less pickling and other similar items.

Electricity Is Widely Used

In the discussion following this paper, there was some question as to the cost of electricity. Mr. Keeney pointed out that where a substantial load was all ready connected up the additional power required for a furnace installation should be considered on the basis of the rate for the increased load and not pro-rated as part of the total load. Mr. Keeney said that electric furnaces or annealing ovens are in operation at present in 16 Connecticut plants, engaged in the manufacture of nonferrous metal products. For this class of work, the electric furnace has proven more economical than oil or gas. In some cases the return on the investment has been as high as 50 per cent a year.

New Officers

AMERICAN ELECTROCHEMICAL SOCIETY

President

PAUL J. KRUESI
President, South Ferro Alloys Co., Chattanooga, Tenn.

Vice Presidents

F. C. FRARY
Director of Research, Aluminum Co. of America, Oakmont, Pa.

F. N. SPELLER
Metallurgical engineer, National Tube Co., Pittsburgh

ALFRED STANSFIELD
Professor of metallurgy, McGill university, Montreal, Que.

Managers

F. M. BECKET
Vice president, Union Carbide Co. and Electro-Metallurgical Co., New York

L. E. SAUNDERS
Manager, abrasive plants, Norton Co., Worcester, Mass.

S. SKOWRONSKI
Research chemist, Raritan Copper Works, Perth Amboy, N. J.

Treasurer

ACHESON SMITH
Vice president and general manager, Acheson Graphite Co., Niagara Falls, N. Y.

Secretary

COLIN G. FINK
Head, division of electrochemistry, Columbia university, New York

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Class I railroads in January installed 154 locomotives in service, an increase of 9 locomotives compared with January, 1927, but a decrease of 37 under the same month in 1926.

Many Have Received the Bessemer Medal

When Charles M. Schwab, chairman of the Bethlehem Steel Corp., and president of the American Iron and Steel institute, receives the award of the Bessemer medal from the Iron and Steel institute at London, this month, he will be added to a roll of distinguished men who have been recipients of this medal since its establishment in 1873 by Sir Henry Bessemer, the great English steel master. The Bessemer medal, which is awarded annually at the meetings of the Iron and Steel institute, is the highest honor within the power of the English iron and steel industry to bestow.

No bounds of nationality surround the award of this medal, and it may be presented to members or nonmembers of the institute. The council decides annually on the presentation of the medal to a man who has contributed in an outstanding way to the iron and steel industry. Awards are made: (1) To the inventor or introducer of any important or remarkable invention either in the mechanical or chemical processes employed in the manufacture of steel; (2) for paper having special merit and importance in connection with iron and steel manufacture, read before the institute; (3) for a contribution to the journal of the institute, being an original investigation bearing on iron and steel manufacture, capable of being productive of valuable, practical results.

Wheeling Steel Earnings Are Higher

First quarter earnings of the Wheeling Steel Corp. and subsidiary companies were $1,024,214 after all charges and before dividends. This compares with $992,252 in the corresponding period of 1927. The later figure includes a profit of $97,499 from the sale of investments, net profit from operations totaling $894,753.

Surplus at the end of the quarter after deducting dividends of 2 per cent on the "A" preferred and 2½ per cent on the "B" perferred, totaling $663,320, was $11,400,957. This compares with surplus of $11,040,063 on Jan. 1, 1928, and with $9,993,584 on March 31, 1927.

The income account for the first quarter compares as follows:

	1928	1927
Operating profit	$ 2,276,650	$ 2,207,070
Depreciation	874,726	914,895
Exhaustion	10,310	13,954
Interest	367,400	383,469
Net profit	$ 1,024,214	*$992,252
Surplus—Jan. 1	11,040,063	9,863,746
Dividends	663,320	663,395
Deferred dividends	.....	199,019
Surplus—March 31	$11,400,957	$ 9,993,584

*Includes $97,499 profit from sales of investments.

Sheet & Tube Earnings Below Year Ago

For the first quarter of 1928 the Youngstown Sheet & Tube Co. reports net income of $1,663,516 after interest, depreciation, and federal taxes. This compares with $2,256,043 in the first quarter of 1927. The comparative income account follows:

	1928	1927
Net after expenses	*$4,208,061	$6,121,390
Other income	763,921	671,445
Total income	$4,971,982	$6,792,835
Depreciation	1,917,759	†2,578,960
Interest, etc	1,390,707	1,462,832
Contingent reserve	230,000	.....
Federal taxes	.....	265,000
Net income	$1,663,516	$2,256,043

*After federal taxes. †Includes depletion.

Trades Body in Stand on Industrial Problems

(*Concluded from Page* 1178)

sibly as the 35 mentioned by Dr. Bullock as being nationally-known companies.

In his own address on the unemployment situation, which was a feature, Mr. Alexander refuted the accuracy of several estimates as to unemployment. He asserted there was no way of ascertaining accurately the number of unemployed in this country, but that with regard to some estimates there appeared such obvious flaws that it was clear the figures had been grossly exaggerated.

Commenting on the use of labor-saving machinery, the speaker asserted that the mechanization of industry has been and is a blessing in disguise and leads to an increase in national prosperity, an increase of employment in new and correlative fields of industry, higher wages, lower living costs and higher standards of living as well as a greater margin of savings for the masses.

Walter Gorden Merritt, counsel, League for Industrial Rights, New York, warned manufacturers to take no part and, in fact, to show active resistance to all efforts leading to a revision of the antitrust laws.

Asserting that government was not organized to conduct commercial enterprises, Bernard J. Mullaney, vice president, Peoples Gas, Light & Coke Co., Chicago, urged members to be on the alert to squelch any efforts pointing to the government or civic operation of an industry, whether it be the operation of busses or some other endeavor.

The Netherlands comprises Great Britain's principal outlet for tin plate on the continent.

Convention Calendar

May 3-4—National Hardware Association of the United States. Seventh annual meeting of metal branch at Copley-Plaza hotel, Boston. George A. Fernley, 505 Arch street, Philadelphia, is secretary.

May 3-4—Iron and Steel institute. Annual meeting at Institution of Civil Engineers, London. G. C. Lloyd, 28 Victoria street, London S. W. 1., is secretary.

May 7-8—Taylor society. Spring meeting at Detroit-Leland hotel, Detroit. H. S. Person, 29 West Thirty-ninth street, New York, is managing director.

May 8—American Refractories institute. Annual meeting at Greenbrier, White Sulphur Springs, W. Va. D. A. Texter, 2202 Oliver building, Pittsburgh, is secretary.

May 8-11—Chamber of Commerce of the United States. Sixteenth annual meeting at Chamber of Commerce building, Washington. D. A. Skinner, 1615 H street, Washington, is secretary.

May 14-17—American Society of Mechanical Engineers. Spring meeting at William Penn hotel, Pittsburgh. Calvin W. Rice, 29 West Thirty-ninth street, New York, is secretary.

May 14-18—American Foundrymen's association. Annual convention and exposition at Commercial Museum, Philadelphia. 222 West Adams street, Chicago, is secretary.

May 15-17—National Supply and Machinery Distributors association. Annual meeting at Hermitage hotel, Nashville, Tenn. George A. Fernley, 505 Arch street, Philadelphia, is secretary.

May 15-17—American Supply and Machinery Manufacturers association. Annual meeting at Hermitage hotel, Nashville, Tenn. F. D. Mitchell, 1819 Broadway, New York, is secretary.

May 15-17—Southern Supply and Machinery Dealers association. Annual meeting at Hermitage hotel, Nashville, Tenn. Alvin M. Smith, Smith-Courtney Co., Richmond, Va., is secretary.

May 18—Gray Iron institute. Open meeting at Commercial Museum, Philadelphia. D. M. Avey, 1213 West Third street, Cleveland, is temporary secretary.

May 22-24—American Steel and Heavy Hardware association. Nineteenth annual convention at Copley-Plaza hotel, Boston. B. R. Sackett, 503 Arch street, Philadelphia, is secretary.

May 23-25—Associated Machine Tool Dealers. Annual spring meeting at Granville. O. E. P. Essley, 551 W. Washington boulevard, Chicago, is secertary.

May 25—American Iron and Steel institute. Spring meeting at Hotel Commodore, New York. E. A. S. Clarke, 75 West street, New York, is secretary.

May 28-31—National Association of Purchasing Agents. Thirteenth annual convention and exhibition at American Royal building, Kansas City, Mo. George A. Renard, 9 Park Place, New York, is secretary.

June 25-29—Association of Iron and Steel Electrical Engineers. Annual convention and exposition at Hotel Stevens, Chicago. John F. Kelly, 705 Empire building, Pittsburgh, is secretary.

June 25-29—American Society for Testing Materials. Annual meeting at Chalfonte-Haddon Hall, Atlantic City, N. J. C. L. Warwick, 1315 Spruce street, Philadelphia, is secretary.

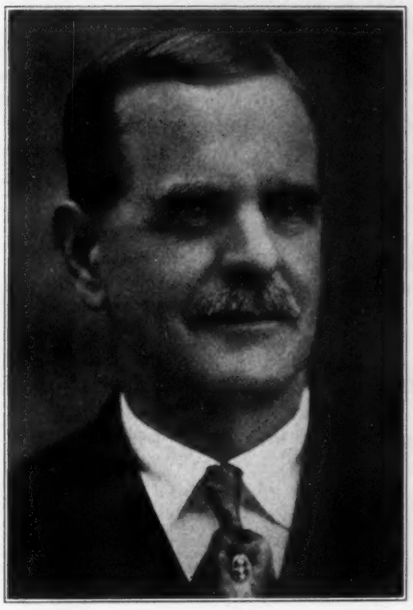
Industrial Men in the Day's News

A. F. Cooke, Newly Elected President of American Gear Manufacturers Association

ACTIVE in the affairs of the organization for several years, and an officer for the past three, he has been honored by his recent election as president.

HIS TECHNICAL education, obtained at night school and through practical plant experience, has fitted him for the executive position he holds.

FOR HIS recreation he maintains a garden and a greenhouse and the greater part of his spare time is spent caring for his flowers.



ELECTION to the presidency of the American Gear Manufacturers association was the honor given to A. F. Cooke, first vice president and Pittsburgh manager, Gears & Forgings Inc., at the annual spring meeting of the association in Rochester, N. Y., April 19-21. Mr. Cooke has been active in affairs of the organization, both in committee work and as a member of the board of directors, for several years and his elevation was a recognition of his past services. For the last three years he has been first vice president.

Mr. Cooke was born in Baltimore, Dec. 30, 1870, and attended schools in that city. Completing his high school training, he entered the employ of the Dietrich & Harvey Machine Co., Baltimore, in 1887 and remained there until 1896, having served first as a machinist and later as draftsman. Through experience gained at this plant and in night school courses he acquired his technical education. For the next two years, 1897-1899, he held the position of an engineer for the American Foundry & Machine Co., Hanover, Pa., formerly a subsidiary of the American Tobacco Co.

In 1900 Mr. Cooke went to Pittsburgh, where for one year he was foreman of the special gear department of the R. D. Nuttall Co., leaving in 1901 to join the staff of the Fawcus Machine Co. of the same city. He has been associated with that company ever since, occupying the positions, respectively, of superintendent, works manager and vice president and general manager, the latter promotion coming in 1918. In that capacity he served the Fawcus company until early this year when it was merged with Van Dorn & Dutton Co. and Ohio Forge Co., Cleveland, and William Ganschow Co., Chicago, to form Gears & Forgings Inc., with headquarters in Cleveland. In the new organization he was chosen first vice president and Pittsburgh manager.

The Fawcus division of Gears & Forgings Inc. manufactures reduction gear drives for heavy duty; industrial gears including herringbone, spur, bevel and worm types; rolling mill and pipe mill machinery; locomotive axle cutting-off and centering machines, etc.

Becoming a member of the American Gear Manufacturers association in 1918, shortly after its organization, Mr. Cooke took an active interest in standardization and other work. In 1921 he was elected a member of the board of directors, a position which he has occupied continuously. Since 1925 he has been first vice president. As chairman of the herringbone gear committee for several years he has had much to do with the work of establishing standards in design for this class of gears.

Mr. Cooke makes his home in Edgewood, a suburb of Pittsburgh. Flower raising is his hobby and the greater part of his spare time is spent in caring for the many flowers in his yard and in a small greenhouse which he maintains. He is a member of the Edgewood Country club, the Edgewood club, Old Colony club, and Keystone Athletic club. For a number of years he has held membership in the American Society of Mechanical Engineers.

Men of Industry

Personal News of a Business Character Pertaining to the Iron and Steel and Related Fields of Enterprise

WARD A. MILLER has been elected vice president in charge of all commercial matters of the Vanadium Corp. of America, with headquarters in New York. He started in the iron and steel industry with Joseph T. Ryerson & Son, Inc., Chicago, and was affiliated with them for a little over seven years during which time he was connected with their Chicago, New York and Pittsburgh offices. For about three years prior to the war he was manager at Pittsburgh. Mr. Miller left the Ryerson organization to join the United States army and following the war he became connected with the Midvale Steel & Ordnance Co., Philadelphia, as manager of the distributors' division of general sales. Later he was made manager of sales in charge of the Chicago district. Since the dissolution of the Midvale Steel & Ordnance Co., he has been New York sales manager of the Midvale Co., Philadelphia, in charge of the district comprising New York, New England and Canada. Mr. Miller is a member of the American Iron and Steel institute, the American Electrochemical society and the American Society for Steel Treaters.

N. Petinot, formerly general manager of sales of the Vanadium corporation, has been appointed assistant to the president and will devote his time principally to technical matters, both in this country and abroad. J. A. Miller Jr., assistant general manager of sales, has been named to succeed Mr. Petinot as general manager of sales. Gustav Laub, who has been assistant secretary, has been appointed assistant general manager of sales. P. J. Gibbons, assistant treasurer, will take on the additional duties of assistant secretary.

* * *

A. B. Shepard has been elected a director of Jones & Laughlin Steel Corp., Pittsburgh, succeeding J. Hughart Laughlin.

* * *

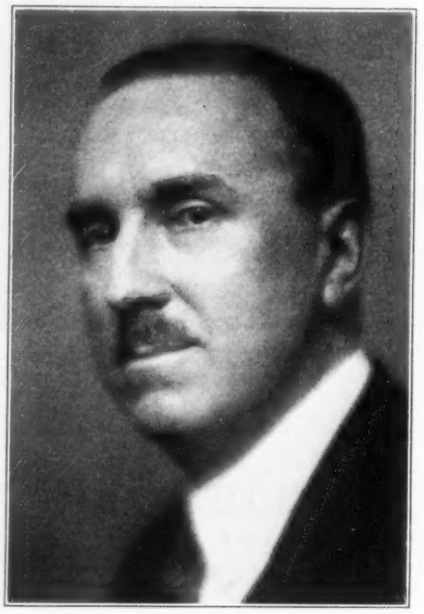
J. P. Jones, manager of sales of the machinery manufacturers section of General Electric Co., Schenectady, N. Y., has been placed in charge of building equipment sales succeeding Carl F. Scott, whose resignation was noted in IRON TRADE REVIEW, issue of April 19.

* * *

Royal B. Freas, manager for the past four years of the Thermo Electric Instrument Co., Irvington, N. J., has been elected president succeeding Thomas B. Freas whose death was announced in IRON TRADE REVIEW, issue of March 22.

* * *

W. W. Campbell, with the Boston



WARD A. MILLER

office of the Richmond Radiator Co., New York, for the past three years, has been given charge of that branch, succeeding James J. Bennett, whose death was announced in IRON TRADE REVIEW, issue of April 12.

* * *

J. E. Montgomery, vice president in charge of operations of the Wheeling Steel Corp., Wheeling, W. Va., and affiliated with the organization for 18 years, has been elected a director succeeding Edward Hazlett, who died recently.

* * *

D. W. Wallace has become northern sales manager of the American Cast Iron Pipe Co., Birmingham, Ala., to have charge of the Minneapolis and Chicago branch offices of the company. He will be assisted by E. L. Gilder at the Minneapolis office and F. W. McMeans at the Chicago office.

* * *

Clyde E. Weir, manager of the Corry, Pa., plant of the United States Radiator Corp. for the past eight years, has been appointed manager of the Dunkirk, N. Y., plant of that company, to succeed H. L. Hosking, who has been transferred to the engineering department of the corporation, at Detroit.

* * *

Theodore Beran, commercial vice president in charge of the New York district of General Electric Co., Schenectady, N. Y., has resigned. Mr. Beran, elected vice president in 1926, had been manager of the New York district since 1903. He was born in Springfield, Mass., and was graduated from the College of the City of New York, New York.

* * *

Stanley W. Parker, metallurgist and sales engineer for the past 12 years for Wheelock, Lovejoy & Co. Inc., Cambridge, Mass., has been made Chicago district manager. Mr. Parker is a graduate of the Massachusetts Institute of Technology, Cambridge, Mass., and spent four years with the Pennsylvania Steel Co., Steelton, Pa., in its metallurgical department.

* * *

Henry K. Brooks, president of Capital Iron Works Co., Topeka, Kans., will take over the duties of Jack Singleton, whose resignation as chief engineer and general manager was noted in IRON TRADE REVIEW, issue of April 19. Paul E. Lagerberg, general sales agent for the Capital Iron company, also will act as purchasing agent.

* * *

B. E. Kibbee, general manager of sales of the Sharon Steel Hoop Co., Sharon, Pa., has been named vice president in charge of sales, to succeed Harry T. Gilbert, whose recent change to Republic Iron & Steel Co. has been noted in IRON TRADE REVIEW. Arthur S. Booth, formerly assistant general manager of sales, succeeds Mr. Kibbee.

* * *

William E. Emmett, for the past four years contracting manager for the Moore Drydock Co., Oakland,

Calif., has been appointed field engineer of district No. 10 for the American Institute of Steel Construction, and has opened offices in the Russ building, San Francisco. Before going to the Coast Mr. Emmett had been with the Kansas City Structural Steel Co. for 11 years. He is a graduate of the University of Kansas, Lawrence, Kans. B. J. Osborne, for the past six years with the structural steel department of the Moore company, has been made contracting manager to succeed Mr. Emmett.

* * *

Arthur G. Henry has become assistant advertising manager of the Berger Mfg. Co., Canton.

* * *

J. Burton has been elected a director of the Pittsburgh Crucible Steel Co., Pittsburgh, to succeed Hamilton Stewart, deceased.

* * *

R. A. Shannon has been made advertising manager of Buck's Stove & Range Co., St. Louis. He had been with the Copper Clad Malleable Range Co., also of St. Louis.

* * *

A. A. Paoli, formerly manager in Winnipeg, Man., for the Ingersoll Rand Co., has become associated with the Kipp Kelly Co. in charge of contractors machinery department in that city.

* * *

E. A. Jacobson, general manager of the Boving Hydraulic & Engineering Co. Ltd., Lindsay, Ont., has resigned and the company is now being reorganized under the direction of T. H. Stinson, secretary of the company.

* * *

Edward P. Geary has been appointed district sales manager at Buffalo for the Colonial Steel Co., Pittsburgh, with offices at 375 Ellicott Square. L. O. Burrell and J. S. Smith are also associated with the office.

* * *

W. H. Post has been appointed manager of the Pittsburgh branch of the Timken Roller Bearing Service & Sales Co. He has been with the company for several years, active in sales work in Cleveland.

* * *

Robert W. Baird, vice president of the First Wisconsin National Bank of Milwaukee, has been elected a member of the board of directors of the Chain Belt Co., Milwaukee, to fill the vacancy caused by the death of Henry O. Seymour.

* * *

Eric Zachau, works manager of the Shaw Crane-Putnam Machine Co., Muskegon, Mich., has been appointed general manager of the Shaw Crane division. He will remain in Muskegon and will have general supervision of the Muskegon Heights plant.

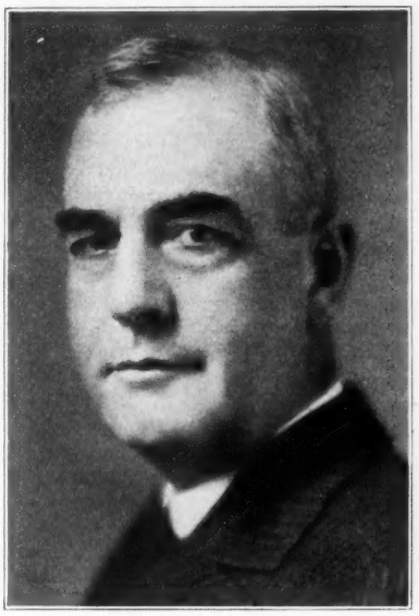
* * *

J. L. Neely, who has been affiliated with the American Sheet & Tin Plate Co., Pittsburgh, for about 26 years and who for several years has been traffic manager, will retire on May 1.

Howard N. Smith, who has been assistant traffic manager, will succeed Mr. Neely as traffic manager.

* * *

Ralph H. Watson, appointed general superintendent of Homestead works of Carnegie Steel Co., Pittsburgh, as announced last week in IRON TRADE REVIEW, made his first connection with that company as a metallurgist's assistant in March, 1902. He had been associated with the bessemer department of the Pennsylvania Steel Co., of New Jersey, at Sparrows Point,



RALPH H. WATSON

Md., prior to that time. He was made metallurgist, then second assistant general superintendent, superintendent of open-hearth furnaces and finally general superintendent. Mr. Watson was born in Harvey, N. B., and is a graduate of Harvard university, Cambridge, Mass.

James E. Lose, superintendent of the Carrie furnaces, has been named to succeed Mr. Watson at the Homestead works.

* * *

M. B. Ericson, secretary and treasurer of the Biflex Corp., Waukegan, Ill., has been elected president. He will relinquish the position of secretary, but continues as treasurer.

W. J. Grotenhuis is now vice president and secretary and W. E. Ericson is vice president in charge of sales. W. G. Pancoast is chairman of the board of directors.

* * *

Cyrus S. Eaton, member of Otis & Co., Cleveland, has been elected a director of Inland Steel Co., Chicago.

* * *

O. W. Irwin has been made manager of the steel joist department of the Truscon Steel Co., Youngstown, O., succeeding John Bowditch Jr., who has resigned. Mr. Irwin has been with the sales department of the Truscon company for a number of years.

* * *

Eugene A. Weaver, formerly with the home office of Surface Combustion Co., Toledo, O., has been made district manager of the Boston office, succeeding L. B. Crossman, who has resigned. Mr. Crossman has become associated with the Boston Consolidated Gas Co.

* * *

Stanley R. Thomas, associated with the Jordan Motor Car Co., Cleveland, for eight years, has been appointed chief engineer in place of Russell S. Begg, who has resigned. For five years Mr. Thomas was experimental engineer for the Hudson Motor Car Co. and later associated with the General Motors Corp. as assistant engineer in the central division.

* * *

J. E. Mullen, formerly assistant sales manager of the R. D. Nuttall Co., Pittsburgh, has been placed in charge of the company's commercial activities now being handled through the Westinghouse Electric & Mfg. Co., of which the Nuttall company is a subsidiary. Mr. Mullen's headquarters will continue at the Nuttall plant, McCandless avenue and Butler street, Pittsburgh.

* * *

Arthur H. Hawkins has been appointed Dallas, Tex., district representative for Granite City Steel Co., Granite City, Ill. Mr. Hawkins held a similar position at the Memphis office, and prior to that had been connected with the United States Steel Corp. at Denver.

Richard W. Orthwein has been appointed representative at Memphis, succeeding Mr. Hawkins.

* * *

Jerome Strauss, formerly material engineer with the United States naval gun plant at Washington, has been engaged by the Vanadium Corp. of America, New York, for special work in engineering and metallurgical lines. Mr. Strauss was graduated from Stevens Institute of Technology as mechanical engineer in 1913. After his graduation, he went with the metallurgical department of the Illi-

nois Steel Co. at South Chicago. He joined the naval gun plant in 1919, following army service as assistant chief chemist and metallurgist. Soon he was promoted to chief chemist and then to material engineer. Twice Mr. Strauss has served as chairman of the Washington chapter of the American Society of Steel Treaters.

* * *

J. W. Davis, formerly of the Chicago office of the McClintic-Marshall Co., Pittsburgh, has been appointed contracting manager at St. Louis, located in the company's newly established office at that point in the Telephone building.

* * *

J. H. James has been appointed purchasing agent of the Pittsburgh & Lake Erie and Lake Erie & Eastern railroads, succeeding C. M. Yohe, recently made assistant to the president of the New York Central lines, with headquarters at Pittsburgh.

* * *

C. B. Gleason, who has been with the Sharon Steel Hoop Co., Sharon, Pa., has resigned to become assistant to Harry T. Gilbert, formerly of the Sharon company but now vice president of the Republic Iron & Steel Co., Youngstown, O.

* * *

John E. Woods, assistant general manager of sales, Carnegie Steel Co., Pittsburgh, and with the company for almost 41 years, has resigned.

Joseph C. Shields, assistant to Mr. Woods, has been named to succeed him as assistant general manager of sales.

* * *

Edward B. Whitacre has been appointed superintendent of the Salem, O., works of the American Steel & Wire Co., Cleveland, succeeding Robert C. Garrison, whose death was announced in IRON TRADE REVIEW, issue of April 19. Prior to 1916 Mr. Whitacre had been with the mechanical department at both the Salem and Donora, Pa., works. In that year he was transferred to Salem as master mechanic.

* * *

Robert M. Keeney, for the past five years general superintendent at Midland, Pa., for the Pittsburgh Crucible Steel Co., Pittsburgh, has been elected president, succeeding F. B. Hufnagel, who since his election as president of the Crucible Steel Co. of America two years ago has held both offices. Mr. Keeney brings to his new office an experience of more than 20 years in operating capacities. He prepared for college at Phillips academy, Exeter, Mass., and was graduated from Cornell university in 1907. He entered the employ of the Illinois Steel Co. in its South Chicago open hearth department in the fall of the same year, and later following a connection of about a year with the New York State Steel Co., Buffalo, now the Donner Steel Co., he went with the Jones & Laughlin Steel Corp. at its Aliquippa works. He resigned in 1917 to become assistant general superintendent of the Whitaker-Glessner Co., Portsmouth, O. He was next general superintendent of the Central Iron & Steel Co., Harrisburg, Pa. Mr. Keeney joined the Pittsburgh Crucible Steel Co. Jan. 1, 1923, and for the past two years has been vice president and a director. He also has been elected a vice president of the parent company.

A. L. Sonnhalter, assistant general superintendent, has been appointed general superintendent. He has been identified with the company since October, 1922.

W. W. Williams, for the past five years general manager of sales of the Pittsburgh Crucible Steel Co., has been elected vice president.

* * *

H. van Zandt has been apopinted assistant general manager of sales in charge of the structural division of the Illinois Steel Co., Chicago. Mr. vanZandt, a graduate of Princeton university, Princeton, N. J., was first associated with the Cambria Steel Co., Johnstown, Pa., in 1905. He left Cambria and went with the Carnegie Steel Co. at Homestead, Pa. After being transferred to Chicago he served as salesman in the Illinois-Carnegie sales organization until his recent promotion in the Illinois company.

Inland Earnings Gain

Earnings of the Inland Steel Co. for the first quarter of 1928 were $2,291,442, after interest, federal taxes, depreciation, and other charges. This compares with $2,130,926 reported for the corresponding quarter of 1927. The comparative income account follows:

	First Quarter		
	1928	1927	1926
Net	$3,442,515	$3,247,064	$2,441,630
Depreciation and depletion	632,823	618,202	490,096
Interest and federal taxes	518,250	497,937	410,625
Net profits	$2,291,442	$2,130,926	$1,540,909

Start Detroit River Span

Towers for the Detroit international bridge, from Detroit to Windsor, Ont., are progressing. First steel on the structure was erected April 2. Steel plates for the base sections of the tower were installed two weeks later. Completion of the anchor base is expected for midsummer, when the towers will be connected and the cable and floor work started. McClintic-Marshall Co., Pittsburgh, is fabricating the steel for the bridge main towers.

Obituaries

ADOLF M. VON SELLING, 42, president of Stacy-Von Selling Inc., Buffalo, died at Blasdell, N. Y., April 21. Prior to entering business for himself, he had been with Peter A. Frasse Co. Inc., steel tube jobber, Buffalo. Leaving the Frasse organization two years ago, he formed the Stacy-Von Selling company.

* * *

Alexander D. Lunt, patent attorney and head of the patent department of the General Electric Co., Schenectady, N. Y., for the last six years, died at Atlantic City, April 25.

* * *

Arthur H. Annan, 63, for 35 years connected with the Rhode Island Tool Co., Providence, R. I., and more recently its superintendent, died at his home at Providence, last week.

* * *

Charles Wellford Leavitt, 57, who some years ago was a partner in C. W. Leavitt & Co., New York, importers of English ferromanganese and dealers in metals, died in Hartsdale, N. Y., April 23.

* * *

Leon G. Buckwalter, 49, purchasing agent for American Brown Boveri Electric Corp., New York, died last week, following a long illness. He was a graduate of the university of Pennsylvania, Philadelphia. Mr. Buckwalter had been with the New York Shipbuilding Co. and the American Brown Boveri corporation, its successor, for 28 years.

* * *

Harry Fulton, assistant comptroller of the American Locomotive Co., New York, died at his home in New York on April 7. Mr. Fulton entered the accounting department of the Pittsburgh Locomotive & Car Works of Pittsburgh, Pa., in March, 1895, and continued with the company after it was absorbed in the organization of the American Locomotive Co. in June, 1901.

French production of iron ore in 1927 was 44,678,415 metric tons, an increase of over 5,000,000 tons over 1926, according to a report from Paris to the department of commerce.

Welsh Tin Plate Trade Booming

Brightest Spot in British Market—General Steel Demand Slows Up—Middlesbrough Pig Iron Stocks Depleted—Some Furnaces May Be Blown In—Government Proposes Tax Reduction—German Markets Quieter, Prices Unsatisfactory

European Headquarters,
IRON TRADE REVIEW,
Caxton House, Westminster, S. W.1

LONDON, May 1.—(*By Cable*)—Government budget proposals reducing tax rates on heavy manufacturing industries, including iron and steel, are pleasing to those industries, but delay of relief until October, 1929, is causing some concern.

British business generally is slow. Middlebrough pig iron stocks are depleted, and possibly some furnaces will be started. Considerable stocks are noted at Barrow. Hematite has been sold for delivery to Italy and Germany. New steel business is scarce and demand for galvanized sheets is slack. The Birmingham sheet and tin plate trade is active, and the Welsh tin plate industry is booming with world-wide orders. Dorman, Long & Co. have booked contract for a steel bridge in Rhodesia.

A report from Paris states the French iron and steel markets are calm. French works are well booked. British pig iron competition is felt in some districts. The Belgian markets are firm. German demands are lower, exports restricted and prices unsatisfactory.

British Steelmakers Regaining Old Business

BIRMINGHAM, Eng., April 20.—(*European Staff Service*)—The iron and steel trades show little change; but the general feature is steady expansion, indicated equally by statistics of production and overseas trade. Pig iron output increased during March from 550,800 tons to 592,600 tons and steel production from 764,400 tons to 793,300 tons. These are the best figures for a year. The overseas record shows the features which have given satisfaction for some time past, exports increasing and imports tending decidedly in the opposite direction. The latter is a new experience for British steelmakers, who have been

Sterling $4.88

reckoning imports in millions of tons. Exports of railway rails for March were 45,743 tons, against 24,753 tons in March 1927, and increases are shown under nearly every head. In imports there is a wonderful arrest in semifinished steel, the effect of which is that the reroller is now depending almost wholly on British mills.

There is no indication yet of the Continental recovery of British business which some people have been predicting, and as the tendency abroad is for costs to increase, competitive ability would seem to have passed away for the present. Costs on this side gradually become more favorable, because the larger output reduces the proportion of overhead charges. Hardly any quotations are coming over, but some joists are offered this week to the British standard test of 28/32 tons tensile at £4 16s ($23.42) f.o.b. Antwerp. This is not an attractive figure and engineers are recovering their old habit of ordering British material to meet strain-resisting requirements.

Steelmaking firms are not quite fully employed, but shipbuilders have taken good quantities of plates and

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, April 30	*British* Gross Tons U. K. Ports		*French* Metric Tons Channel Ports		*Belgium and Luxemburg* Metric Tons Channel Ports		*German* Metric Tons Rotterdam or North Sea Port	
Export Prices f. o. b. Ship at Port of Dispatch—By Cable								
PIG IRON		£ s d		£ s d		£ s d		£ s d
Foundry No. 3, Silicon 2.50-3.00	$16.10	3 6 0*	$15.13	3 2 0	$15.13	3 2 0	$15.62	3 4 0
Basic	.....	.....	14.64	3 0 0	14.64	3 0 0	15.37	3 3 0
Basic-bessemer	16.84	3 9 0†	14.64	3 0 0	14.64	3 0 0	14.64	3 0 0
Hematite, Phosphorus 0.02-0.05	17.08	3 10 0	22.26	565*	.....	.....	17.08	3 10 0
SEMIFINISHED STEEL								
Billets	$28.06	5 15 0	$22.33	4 11 6	$22.33	4 11 6	$22.20	4 11 0
Wire rods	47.58	9 15 0	28.06	5 15 0	28.06	5 15 0	28.06	5 15 0
FINISHED STEEL								
Standard rails	$37.82	7 15 0	$31.11	6 7 6	$31.11	6 7 6	$31.11	6 7 6
Merchant bars	1.58c	7 5 0	1.16c	5 5 0	1.16c	5 5 0	1.16c	5 5 0
Structural shapes	1.61c	7 7 6	1.03c	4 13 6	1.03c	4 13 6	1.06c	4 16 0
Plates, ship, bridge and tank	1.77c	8 2 6	1.36c	6 4 0	1.36c	6 4 0	1.49c	6 15 0
Sheets, black, 24 gage	2.18c	10 0 0	2.31c	10 10 0	2.31c	10 10 0	2.18c	9 18 0
Sheets, galvanized, 24 gage, corrugated	2.83c	13 0 0	3.30c	15 0 0	2.92c	13 5 0	2.92c	13 5 0
Bands and strips	2.23c	10 5 0	1.32c	6 0 0	1.32c	6 0 0	1.18c	5 7 0
Plain wire, base	2.12c	9 15 0	1.54c	7 0 0	1.54c	7 0 0	1.60c	7 5 0
Galvanized wire, base	2.94c	13 10 0	1.98c	9 0 0	1.98c	9 0 0	2.04c	9 5 0
Wire nails, base	2.51c	11 10 0	1.62c	7 7 6	1.62c	7 7 6	1.87c	8 10 0
Tin plate, base box 108 pounds	$ 4.45	0 18 3	.....	.....	.....	.....	$ 6.83	1 8 0

*Francs

Domestic Prices at Works or Furnace—Last Reported			Francs		Francs		Marks	
Foundry No. 3 Pig Iron, Silicon 2.50—3.00	$16.10	3 6 0	$17.53	445(2)	$16.32	585	$18.66	78
Basic pig iron	.....	.....	18.91	480(1)	14.93	535	21.05	88
Furnace coke	2.93	0 12 0	5.91	150	5.16	185	5.14	21.50
Billets	28.06	5 15 0	22.26	565	23.72	850	27.99	117
Standard rails	1.74c	8 0 0	1.36c	755	1.43c	1,100	1.51c	140
Merchant bars	1.63c	7 10 0	1.22c	675	1.22c	935	1.48c	137
Shapes	1.72c	7 17 6	1.17c	650	1.17c	900	1.45c	134
Plates, ship, bridge and tank	1.88c	8 12 6‡	1.42c	790	1.43c	1,100	1.65c	153
Sheets, black, 24 gage	2.51c	11 10 0	2.74c	1,520	2.41c	1,850	2.38c	220
Sheets, galvanized 24 gage, corrugated	2.89c	13 5 0	3.42c	1,900	3.80c	2,925	3.78c	350
Plain wire	2.12c	9 15 0	1.71c	950	1.89c	1,450	2.32c	215
Bands and Strips	2.29c	10 10 0	1.42c	790	1.54c	1,185	1.71c	158

*Middlesbrough; †Scotch foundry iron; ‡delivered; (1) Basic-bessemer; (2) Longwy. British export furnace coke £0 12s 0d ($2.93) f. o. b. Ferromanganese £20 10s 0d ($100.04) delivered Atlantic seaboard, duty paid. German ferromanganese £15 0s 0d ($73.20) f. o. b.

The equivalent prices in American currency are in dollars per ton for pig iron, coke, semifinished steel and rails; finished steel is quoted in cents per pound and tin plate in dollars per box. British quotations are for basic open-hearth steel; French, Belgian, Luxemburg, and German are for basic-bessemer steel.

the position of the west of Scotland is much better than a few months ago. In Sheffield the position has improved, makers of tires and axles having some months work on hand. Fair quantities of miscellaneous steel have been taken but the busiest firms are those making special qualities and producers of high speed magnet and tool steels are busy. At present there is a lull in structural demand, but some inquiries from India seem to promise improving business. Some steel mills are still suspended, and are making necessary repairs.

The marked improvement in the Welsh tin plate trade has brought some orders for mill machinery to Staffordshire foundries, but there is no great call for heavy rolls.

In pig iron improvement is noted. Exports from Middlesbrough are being absorbed and though an additional stack has been put into operation there is every probability that more will be wanted shortly. Demand for hematite has improved, but stocks are rather heavy, and it has been found impossible to obtain better prices. Ferromanganese is in fair demand at £13 10s ($65.88) for domestic and £13 ($63.44) to £13 5s ($64.66) c. i. f. Continental ports. Exports from Middlesbrough are rather small, but foreign competition is fairly met. Blast furnace coke continues at 18s ($4.40) for Durham coke delivered Middlesbrough.

On the west coast the most satisfactory feature is almost complete clearance of stocks at furnaces which have been idle for some months. There is every hope that more stacks will be lighted shortly. Scotland and South Wales are not taking much west coast iron. Wales and the Midlands are good customers, and fair sales are being made to foreign buyers of low phosphorus quality.

Demand for heavy steel scrap has improved lately, and £3 5s ($15.86) delivered South Wales is easily realized. That area is deriving most advantage from the revived demand for simifinished steel, and larger quantities of scrap are being taken to the furnaces for melting.

Staffordshire iron mills maintain the recent improvement, and are supplying good quantities of tube strip and iron for chains, anchors, etc., called for in connection with the shipbuilding revival.

The call for galvanized sheets is only moderate, and prices have further receded to £13 2s 6d ($64.05) though this figure is not altogether firm. The shrinkage of business with India is rather severely felt. The motor trade is a good customer for light gage sheets of high quality. The shipment during March of 72,137 tons of galvanized sheets indicates an improvement in overseas business. For February the figure was 59,132 tons.

The tin plate trade is getting into its full stride. The volume of orders is believed to be as great as at any time in the history of the trade, and new records are likely to be established. The canning industries of the Colonies, South America and the Far East are coming forward with increased tonnages. A meeting was held in Swansea a few days ago to consider the advisability or raising the basis price from 17s 9d ($4.34) but as the present selling figure is 18s 3d ($4.46) the makers decided to leave prices to take care of themselves. They took, however, the important step of abolishing the restriction of output, which has been in operation for some months.

Prospects of shipbuilding orders are good, and at present well over half a million tons of shipbuilding is in progress at northeast coast yards, a total considerably in excess of that of a year ago.

Exports Show Recovery in British Steel

Birmingham, Eng., April 20.—(*European Staff Service*)—The British board of trade's return for March shows a total export of iron and steel products, including scrap, of 445,088 tons, compared with 342,931 tons in February and 361,364 tons a year ago.

Imports, including scrap, total 273,780 tons against 289,581 tons in February and 491,071 tons in March last year.

The gradual expansion of British overseas trade is reflected in heavier tonnages under nearly all heads. Pig ironmakers have recovered lost markets, foundry iron exports totaling 29,084 tons, compared with 17,182 tons a month ago. Ferroalloys also increased from 2427 tons in February to 6403 tons in March. Similar expansion is noticeable in finished steel, steel girders totaling 7842 tons as against 5894 tons in February, while railway rails increased from 35,891 tons to 45,743 tons. Galvanized sheets also show a substantial improvement, the figures being, February, 59,132 tons; March, 72,137 tons. Tin plates increased to 51,615 tons from 43,773 tons a month ago.

While more iron and steel is being shipped from British ports the amount of foreign material being landed is diminishing. This is particularly noticeable in such products as foundry pig iron and semifinished steel. In March the foundry iron imported totaled 4886 tons, against 6369 tons in February. Steel bars, rods, etc., fell from 56,113 tons in February to 41,876 tons in March. Steel girders which in February totaled 12,679 tons amounted to 10,289 tons in March, while plates and sheets fell from 22,758 tons in the previous month to 16,733 tons.

Narrow Market for Belgian Steel

BRUSSELS, April 20.—(*European Staff Service*)—The market is slackening and orders are scarce. Prices are not seriously attacked, but for some commodities have receded a little. English firms are not buying on the continent as their home conditions are practically the same as those accepted by French and Belgium manufacturers for export. On the other hand, the French market is not as bright as before and many works are willing to sell again; their order books are yet full, but for some weeks home consumers have stopped buying and it will not be long before mills will try to get new orders for semifinished or finished products. It was heard that some firms already have started to sell abroad. The German market is not bright and works tried from time to time to obtain export orders. For these reasons it would be natural to think that the export market will be dull for some time.

The meeting of the international wire rod sales organization was held in Paris at the end of March. The most important question discussed was the breaking up of this comptoir June 30 should an international entente be tween the wire products works not b formed before May 15. Forecasts are not promising regarding this particular point, and French, Belgian and German members of the wire rod syndicate did their utmost to get an agreement preventing such a disastrous contingency. The French proposed postponing the breaking-up clause until the end of the present year if a wire products syndicate is not organized before Nov. 15. Representatives of the Stahlwerksverband agreed, on the following conditions: (1) that the excess of their quota during the last quarter of 1927 be canceled; (2) that the quota of the wire rod exported and the quota of the tonnage sold on the home market be not added together; (3) that the penalty be computed only on the export shipments. The first concession was granted, and it was said that until the end of the year the clauses of the present contract would be transformed to agree with the demands of the Germans. The postponement of the wire rod syndicate was accepted.

A fortnight ago sheet bars were sold at £4 12s ($22.28); the works tried to get £4 12s 6d ($22.40), but no order was booked at that price and at the last meeting of the Brussels iron and steel exchange they were quoted at £4 12s ($22.28). The market for small billets is absolutely inactive, but blooms have been transacted at between £4 3s and £4 5s ($20.12 and $20.60). Billets range from £4 9s to £4 11s ($21.56 to $22.04). Sheet bars are quoted at £4 12s ($22.28). In merchant bars orders were not numerous. Bars are sold at £5 5s ($25.45). Standard beams are quoted at £4 13s ($22.52) and British sections at £4 15s ($23). Prices quoted for plates are as follows: 3/16-inch thick £6 4s ($30.06); ⅛-inch £6 8s ($31.02); 3/32-inch £6 10s to £6 11s ($31.50 to $31.74); 1/16-inch £6 14s to £6 15s ($32.46 to $32.70); 5/10-inch £10 10s ($50.90).

Members of the wire rod syndicate are willing to increase the price of wire rod, but British mills are selling at prices practically the same as those actually accepted by continental works, and for this reason it does not seem possible to achieve that result although hope is entertained that such will become an actuality.

Machinery

April Business Certain to Drop Below March Volume—Few Large Inquiries Are Outstanding—Light Miscellaneous Equipment Active

THE last week of April has developed little in the way of new inquiries and it now appears that business for the month will fall as much as 10 to 15 per cent below the total for March. Light miscellaneous equipment is moving at a faster rate than heavy machinery. Westinghouse Electric & Mfg. Co., which still is buying sparingly against its second quarter list, intimates that its third quarter list will make up for the smallness of its March to May requirements. Railroad buying is negligible in all districts, and this is proving a disappointment to manufacturers and dealers who had anticipated good business from the carriers. A tractor plant in Springfield, Ill., is expected to inquire for a number of tools shortly, in connection with an expansion program.

New York, May 1.—A good volume of miscellaneous demand for machine tools continues in this district. Notable, however, is a lack of inquiry for heavy machines. Included in recent inquiries are two radial drills, one pipe machine, one turret lathe and one combination punch and shear for the New York, New Haven & Hartford, on which bids are to be closed tomorrow. The Bethlehem Steel Corp. has closed on two turret lathes for Bethlehem, Pa., but as yet has taken no action against the sizable list recently noted as pending for Sparrows Point, Md. Certain eastern builders are in receipt of substantial orders from automobile and aircraft companies.

Pittsburgh, May 1.— Machine tools, cranes, and in fact all lines of equipment are quiet as far as sales are concerned although crane inquiries keep up fairly well. No new lists of machine tools are out, but a fair number of inquiries for one or two items at a time are being worked upon. Westinghouse Electric & Mfg. Co. has made one or two additional purchases against its list and promises that its third quarter list will make up for the smallness of the second quarter requirement. It bought a small precision dividing head. A local manufacturer bought a $12,000 special machine from one dealer, and Jones & Laughlin Steel Corp. purchased a centerless grinder from another for its cold finishing, or shafting, department. Dealers have looked in vain to the railroads for expected inquiries but these are slow to come out. Prospective crane buyers, such as Wheeling, Weirton, Carnegie and other steel companies still defer action. Pittsburgh Steel Co. informs crane sellers that there will be no crane purchases in connection with its by-product coke oven installation.

Chicago, May 1.—Railroad inquiry and sales continue to drag, but single-item industrial inquiry and buying have been stimulated during the week. Several dealers find that April business will run close to the March volume, in view of the activity that is developing in the closing days of this month. Others find April a slow month. In general, it is believed April business will run 10 to 15 per cent below March in the Chicago district. More of a demand has been shown during the week in light shop equipment and sheet metal working tools than in heavier machinery items. It is understood that a tractor plant at Springfield, Ill., will inquire for a number of machine tools shortly as a part of an expansion program now under way. A Milwaukee road machinery builder is expected to order some equipment soon. Chicago & North Western railroad is inquiring for a 14-inch lathe and several other items, and the Burlington will buy a band saw in addition to some other tools. Aside from the Santa Fe, major railroad inquiry is lacking from the western carriers. A considerable amount of tools is being bought for the Kansas City railroad terminal shops, but practically none of this order will be closed in the Chicago district.

Worcester, Mass., May 1.—Machine tool demand continues steady and generally satisfactory, but textile buying is slow with a strike in one of the largest New England textile centers. Automobile makers are taking a fair volue of lathes and automatic machines of a special type. Replacements from the automotive branch have been a decided factor in this market. Grinding machinery is moving well. Makers of machine motors note an increase in demand for single-unit motor-driven machinery. Most small tool makers are doing a brisk business, but in many instances this is due largely to the fact they have greatly enlarged their line of products.

The Engineering Societies employment service, 29 West Thirty-ninth street, New York, conducted by the four founder societies, has been prospering to such a degree that it has been necessary to find enlarged quarters to take care of the extra demands which are being put upon it.

CRANE ORDERS PLACED

Among single orders were: 25-ton locomotive crane for International Coal Carbonization Corp., New Brunswick, N. J., to Browning Crane Co.; 1½-cubic yard overhead crane for New Jersey Zinc Co., Palmerton, Pa., to Harnischfeger Corp.; used crawler crane for Robins Dry Dock & Repair Co., Brooklyn, N. Y., to an unnamed seller; 15-ton crane for Grays Harbor Railway & Light Co., Aberdeen, Wash., to Box Crane & Hoist Corp.

CRANE ORDERS PENDING

Used crawler crane for Robins Dry Dock & Repair Co., Brooklyn, N. Y.; bids asked. This is in addition to a similar crane just placed.

10 to 12-ton crawler crane for Franklin Lumber Co., Port Newark, N. J.; bids asked.

7½ to 10-ton crawler crane for Standard Oil Co. of New Jersey for export; pending.

Electric Output Gains

Output of electricity by public utility power plants in the United States in 1927 was 80,205,000,000 kilowatt-hours, according to the revised figures of the department of the interior. The increase in output from 1926 to 1927 was about 9 per cent. The amount produced by water power was about 37 per cent of the total, as against 35½ per cent in 1926.

The report of the annual production of electricity for 1927 gives the total production of electricity for each state, the amount produced by water power and by the use of fuels, and the total amount of each fuel consumed in generating electricity. The number of public utility power companies and plants and the capacity of generators on January 1, 1928, are given for each state. Copies of this report may be obtained from the geological survey, Washington.

Republic Earnings Up

Net income of the Republic Iron & Steel Co. for the first quarter of 1928 was $487,331, after depreciation, depletion, interest and taxes against $483,754 in the preceding quarter, and $1,044,422 in the corresponding period of 1927.

It was stated by officials that while earnings for the quarter were below full dividend requirements, current earnings and present prospects, in the opinion of directors, warranted action taken in declaring the regular dividends. Unfilled orders on March 31, 1928, were 170,671 tons, against 140,809 tons on Dec. 31, 1927, and 165,391 tons on March 31, 1927.

Eight Standards Set Up

Washington, May 1.—Eight simplified practice recommendations were completed in the first quarter of 1928 by the division of simplified practice, department of commerce, in co-operation with the interested industries. A total of 88 simplified practice recommendations has now been promulgated. Acceptances of adopted recommendations have been more inclusive.

Here and There in Industry

Live Information Which Records the Expansion of Various Lines of Productive Enterprise

MILTON MFG. CO., manufacturer of bolts, nuts, rivets, steel and iron bars and reinforcing bars at Milton, Pa., which recently was discharged from the hands of receivers, has been reorganized with a strong directorate. Stockholders of the company have elected the following board: William P. Beeber, president, First National bank, Williamsport, Pa.; William Cawley, vice president, Peoples Savings & Dime Bank & Trust Co., Scranton, Pa.; Harry W. Chamberlin, president, Milton National bank, Milton, Pa., Chauncey P. Colwell, Cassatt & Co., Philadelphia; William C. Dickerman, vice president, American Car & Foundry Co., New York; James B. Graham, president, Lycoming Trust Co., Williamsport, Pa.; Raymond W. Krise, vice president, Milton Mfg. Co., Milton, Pa.; N. Thompson Marsh, president, Milton Trust & Safe Deposit Co., Milton, Pa.; Seth T. McCormick Jr., Williamsport, Pa.; Arthur Peck, Harper & Turner, Philadelphia; Vandling D. Rose, Scranton, Pa.; and W. Walter Wilson, president, First National bank, Milton, Pa.

Directors have elected the following officers: President, W. W. Wilson; vice president, R. W. Krise; secretary, Harry W. Chamberlin; and treasurer, O. S. Stamm. An executive committee was appointed, as follows: Chairman, W. W. Wilson, and H. W. Chamberlin, N. Thompson Marsh, James B. Graham and Seth T. McCormick Jr.

* * *

A. WICKLAND & CO., INC., Chicago, consulting engineers, have moved their offices to the Engineering building, 205 Wacker drive.

* * *

AETNA INDUSTRIES INC., Chicago, wrought iron, steel and brass products, has moved to its own plant just completed, at 2539 West Lake street. R. S. Brandt is president.

* * *

NORTHERN TOOL CO. INC., Utica, N. Y., has been bought by Wilbur R. Ralph, who will enlarge its facilities for the manufacture of valves and water gages.

* * *

KANSAS CITY STRUCTURAL STEEL CO. has moved its district sales office in Denver from 412 First National Bank building to 410 Tramway building. N. W. Funk is district sales manager.

* * *

J B. HAMILTON is established at 40 Journal square, room 211, Journal Square National Bank building, Jersey City, N. J., to deal in surplus machinery and equipment. Mr. Hamilton formerly was vice president of the Wickes Machinery Co.

* * *

ROME HOLLOW WIRE & TUBE CO., Rome, N. Y., which has been in existence for a number of years, has become incorporated, with $20,000 capital. Directors are: Howard D. Wolfe, Barton Haselton, Jesse J. Armstrong, James J. Russell, and Leslie A. Wiggins, all of Rome.

* * *

KEYSTONE STEEL & WIRE CO., Peoria, Ill., has elected officers as follows: Chairman, B. L. Sommer; vice president, C. W. LaPorte; vice president, secretary and general superintendent, D. P. Sommer; vice president, treasurer and assistant secretary, Henry G. Sommer; vice president in charge of sales, R. E. Sommer; assistant secretary, R. L. Swibold; assistant treasurers, B. Ziegler and A. M. Kambly.

* * *

BISHOP & BABCOCK Mfg. CO., Cleveland, will move its fan and blower plant from Worcester, Mass., to Cleveland, concentrating its activity there. An addition will be built adjoining its plant at Hamilton avenue and East Forty-ninth street, 120 feet square. It will be equipped with a 5-ton bridge crane of 40 feet span. H. K. Ferguson Co., Cleveland, has been awarded a contract for the structure.

* * *

ROLLER BEARING CO. of America, Newark, N. J., has bought the entire plant of the Mercer Motor Car Co., Trenton, N. J. This plant is on a site of 11½ acres and buildings have 175,000 square feet of floor space. The buildings are one story, with sawtooth roofs. Present equipment will be moved to the new plant and much additional will be installed to meet enlarged demands. Joseph C. Trainer, Philadelphia, is president of the Roller Bearing Co. of America; David H. Littler, Newark, is secretary; Emanuel P. Scheck, Newark, is attorney; Allen H. Jones, Belleville, N. J., is vice president; and John J. Berliss, Belleville, treasurer. The business was started nine years ago by the latter two, at Roseville, N. J., moving to larger quarters at Belleville and later to Newark.

* * *

WELDING METALS MFG. CO., Cleveland, which recently absorbed the Electric Welding Co., Cleveland, has established a butt welding department with capacity up to three inches. H. H. Snyder is president.

* * *

STUEBING COWAN CO., Cincinnati and Holyoke, Mass., has moved its New England plant into a larger factory, gaining about 80 per cent in space. This plant will care for all New England and eastern business. A complete stock of lift trucks and platforms is carried at Holyoke for shipment to territory as far south as Baltimore and Washington. The Cincinnati plant will continue to supply other territory.

* * *

TENNESSEE COAL, IRON & RAILROAD CO., Birmingham, Ala., is having an electric towboat built for service on the Warrior river in Alabama. It is of the tunnel-stern, twin screw wheel type, powered by diesel-electric drive. The boat is being built by the American Bridge Co. and will be outfitted by the Carnegie Steel Co. Electric equipment will be by the General Electric Co. Other boats owned by this company are of the stern wheel type. The new craft is expected to be better suited to maneuvering in the tortuous channel of the Warrior river. The power plant consists of two 550-horsepower diesel engines manufactured by the New London Ship & Engine Co., direct connected to two 335-kilowatt, 250-volt, 250 revolutions per minute, direct current generators.

* * *

UNIT CORP. OF AMERICA, Milwaukee, has acquired the Fuller & Sons Co., Kalamazoo, Mich., manufacturer of automobile gears and transmissions. The Unit corporation includes the Obenberger Forge Co. and the Dallman Machine & Mfg. Co., Milwaukee, and a gas engine manufacturer in Wisconsin remains to be

acquired to give facilities for a complete industrial power and transmission unit. The corporation is occupying the Obenberger works, West Allis, Wis. W. H. Schmidt is president, E. W. Edwards vice president, P. O. Dallman secretary, and George C. Moerschel treasurer.

* * *

RUDOLPH P. MILLER, consulting engineer, New York, has moved offices to the Architects' building, 101 Park avenue.

* * *

STANDARD APPRAISING CO., Cleveland, has changed its name to Standard Valuation Co. Offices are at 1009 Williamson building.

* * *

BIGGS & CO., mill supplies, Wichita Falls, Tex., James Biggs president and manager, has moved to its new office and warehouse, 1401 Lamar street.

* * *

LAKE ERIE BOLT & NUT CO., Cleveland, has opened a sales office at 2836 Grand Central Terminal building, New York. W. P. Rave is in charge.

* * *

L. J. KAUFMAN has succeeded to the business of N. Dedrick, Manitowoc, Wis., manufacturer of engraving machinery, special machinery and experimental work.

* * *

OLIVER H. VANHORN CO., New Orleans, has taken over the business of the Cahn-Richards Tool & Supply Co. and the latter has been dissolved.

* * *

E. L. FRESHLY, wood and metal patterns, 8714 Quincy avenue, Cleveland, is planning removal to larger quarters to increase output of patterns for electrical switches, blowers and concrete mixers.

* * *

AMERICAN CHAIN CO., American Cable Co., Reading Casting Co. and Page Steel & Wire Co. will occupy office space in the New York Central building, Park avenue, between Forty-fifth and Forty-sixth streets, New York.

* * *

AMERICAN CAST IRON PIPE CO., and Aldrich Pump Co. have opened a joint branch office at 1209 Empire building, Pittsburgh, in charge of J. E. Holveck and T. L. Simpson. This office will serve Ohio, West Virginia and the mining districts of Pennsylvania.

* * *

GILDORE CO., 2207 Union avenue, Altoona, Pa., has been organized to take over the scrap iron and metal business of the late Harry Sealfon, which has been bought from the administrator.

* * *

PITTSBURGH-DES MOINES STEEL CO. has moved its main offices to its new office building at its plant on Neville island. Its Pittsburgh sales office will remain at 429 Penn avenue for the present.

* * *

ROOT CO., Bristol, Conn., and the Veeder Mfg. Co., Hartford, Conn., have been merged as the Veeder-Root Co. The companies manufacture counting machines. Curtis H. Veeder, president, and David J. Post, treasurer of the Veeder Mfg. Co., sole owners of the company, will retire from active business.

* * *

AMERICAN ELECTRIC SWITCH CORP., Minerva, O., is adding a 2-story structure to its plant, with 26,000 square feet of floor space. The addition is connected to the present plant by runway and electric conveyor. The new building will be occupied by the switchboard, panelboard, knife switch and shipping departments.

* * *

SNEAD & CO., Jersey City, N. J., have the contract for the book stacks in the Sterling Memorial library at Yale university, New Haven, Conn. The stack will be 18 stories, 130 feet high and will be welded. G. D. Fish of the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., is consulting engineer on welding for this project.

* * *

NORTHWESTERN TERMINALS CO., St. Louis, will begin operation of a privately-owned barge line on the Mississippi river between St. Louis and St. Paul July 1 with 50 barges in service. Coal will be carried upstream and iron ore downstream. The company is headed by W. L. Harding, former governor of Iowa; Philip A. Bennett, Springfield, Mo., vice president.

* * *

BERGSTROM PAPER CO., Neenah, Wis., will build a powerhouse, 50 x 50 feet, and a boiler room, 50 x 110 feet. Equipment has been contracted as follows: 2500 kilowatt turbines and condensers, Allis-Chalmers Mfg. Co., Milwaukee; three boilers, Erie City Iron Works, Erie, Pa.; stokers, Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.; coolers, Liptak Corp., Detroit; superheaters, Lesco Super Heater Co., New York.

* * *

VIKING METAL PRODUCTS CORP., recently formed at Jamestown, N. Y., to manufacture metal doors, interior trim, partitions and elevator fronts and cars, has leased the plant formerly occupied by the Royal Upholstery Co., Scott street. It is being equipped for metal working. D. Lawrence Carlson is president, Ernest T. Johnson vice president and August W. Berkstrom secretary and treasurer.

* * *

HOLLOW METAL CONSTRUCTION CO., Falconer, N. Y., recently incorporated, has bought the plant of the Supreme Furniture Co., which has been dissolved. The plant is on a site of four acres and contains 61,000 square feet of floor space. Metal partitions will be the product of the new company. Charles J. Swanson is general manager. Directors include Charles J. Swanson, Emil A. Peterson, August Hultquist, Charles E. Backus and F. Charles Herby.

* * *

NATIONAL-HARRIS WIRE CO., Newark, N. J., manufacturer of chrome and special alloys, has leased the plant formerly occupied by Heller Bros. for the manufacture of files. It was vacated by this company two years ago when its business was removed to Newcomerstown, O. The National-Harris Wire Co. a year ago bought and merged three plants, the National Alloyed Metals Co., Providence, R. I., Murray-Harris Wire Co. and Harris Alloys Inc., Newark. Manufacturing will be concentrated in the newly-leased plant.

* * *

GRAYS HARBOR IRON & MACHINE WORKS, Aberdeen, Wash., and the Lamb Machine Works, Hoquiam, Wash., both manufacturers of sawmill equipment, have been merged by acquisition of control of the former by Frank H. Lamb, president of the latter. They will be operated as separate units. The Aberdeen plant will specialize in sawmill machinery and repairs and the Hoquiam unit in steel castings and forgings and logging equipment. Frank H. Lamb is president of the new company, I. W. Johnson, vice president, M. T. Thorpe, treasurer, George E. Lamb, secretary.

* * *

TOPP-STEWART TRACTOR CO., Clintonville, Wis., manufacturer of four-wheel drive tractors and the Atlas Engineering Co., Milwaukee, manufacturer of conveyors, loaders and bucket elevators, have been merged under the name of the latter. The Atlas company will move to Clintonville where the plant will be enlarged by construction of an addition, 25 x 200 feet. The sales office will remain in Milwaukee, in charge of H. W. Zimmerman, president. C. W. Zimmerman is vice president, Arthur Nickel secretary and David J. Rohrer, Clintonville, treasurer.

CONSTRUCTION and ENTERPRISE

Concise Timely Business Building Opportunities from Field of Industry

North Atlantic

WASHINGTON—Simmons Columbia Aircraft Corp. has been incorporated with $100,000 capital by Henry Edward Austin, 1940 First street N. W.

ARLINGTON, MASS.—Cambridge Salvage & Supply Co. will build a manufacturing and storage plant, 65 x 90 feet. Handling equipment will be installed.

GARDNER, MASS.—Hedstrom Union Co., maker of vehicles for children, plans to build a 3 and 4-story plant addition, 60 x 130 feet and 40 x 60 feet.

HOLYOKE, MASS.—Holyoke Water Power Co., 1 Canal street, plans a hydroelectric power plant development on the Connecticut river.

QUINCY, MASS.—K. A. Karjalainen, 23 Greenwood avenue, plans to build a 2-story automobile repair shop 40 x 100 feet.

CAMDEN, N. J.—Samuel M. Langston Co., Sixth and Jefferson streets, manufacturer of paper-box making machinery, has awarded the contract for a 1-story plant addition 40 x 100 feet, to Fearn & Voegtlin, 223 North Forty-first street.

EAST BOUND BROOK, N. J.—Fetter Steel Barrel Co., branch of the main plant in Buffalo, has established a plant in the building formerly occupied by the Crown Chemical Co. where the manufacture of steel containers will continue.

NEWARK, N. J.—Plainfield & Grachen Inc. has been incorporated with $50,000 capital to manufacture wood and metal products by Henry Gottfried, Newark, attorney.

NEWARK, N. J.—Eagle Metal Products Corp. has been incorporated with $125,000 capital to manufacture sheet metal products, by Morris J. Oppenheim, Newark, attorney.

NEWARK, N. J.—Newark Electric Coal Corp. has been incorporated with 2500 shares no par value stock to manufacture heating control apparatus by Whiting & Moore, Newark, attorneys.

NEWARK, N. J.—Anderson Transmission Co. Inc. has been incorporated with 1000 shares no par value stock to manufacture and deal in automobile transmission equipment, by Osborne, Cornish & Scheck, Newark, attorneys.

ALBANY, N. Y.—Interstate Plumbing Supply Co., 733 Broadway, has awarded the contract for a 2-story plant to D. Anderson, 25 Market street, Poughkeepsie, N. Y., where the construction will take place. The plant, to be equipped with pipe shop, fitting department, etc., will be used for mechanical and distributing plant.

BROOKLYN, N. Y.—Progressive Table Co. has awarded the contract for a 2-story plant to I. Rosenblum & Sons, 1691 Carroll street.

BROOKLYN, N. Y.—Goldberg & Leininger has been incorporated with $50,000 in preferred shares and 200 shares no par value stock to manufacture and deal in wireless instruments, by H. Klein, 1457 Broadway, Manhattan, attorney.

BUFFALO—Border Metal Products Co. has been incorporated with $200,000 in preferred shares and 100 shares no par value stock to do stamping, welding, etc., by Stanley & Gidley, Buffalo, attorneys.

KINGSTON, N. Y.—Degarmo Research Corp. has been incorporated with $5000 capital to manufacture fire extinguishers by Brinnier, Canfield & Elsworth, Kingston, attorneys.

NEW YORK—Perga Metal Products Corp. has been incorporated with $3000 capital by R. P. Monahan, 49 Wall street, attorney.

NEW YORK—New York, New Haven & Hartford railroad, Grand Central Terminal, plans to build an electric inspection and operating shop, 105 x 375 feet.

NEW YORK—Advance Chromium Corp. has been incorporated with $10,000 capital to do chromium plating, by E. A. Weinstein, 16 Court street, Brooklyn, attorney.

NEW YORK—Temlock, Reinbach & Wortman Inc., sheet metal manufacturer, will operate a plant at 607 East Fifteenth street, where it has moved recently.

NEW YORK—Recordex Corp. has been incorporated with $100,000 in preferred shares and 2500 shares no par value stock to manufacture recording files. H. Goldman, 120 Broadway, is attorney.

NEW YORK—Pruyn Bearing & Parts Service Co. has been incorporated with $20,000 capital to manufacture and deal in airplane and auto accessories, by S. J. Robbins, 51 Chambers street, attorney.

NEW YORK—Electro-Automatic Heat Controller Corp. has been incorporated with 100 shares no par value stock to manufacture and deal in furnace controls by S. Gutterman, 1270 Broadway, attorney.

NEW YORK—Linde Air Products Co., 30 East Forty-second street, has awarded the general contract for a 1-story plant to be built at Allentown, Pa., to F. H. Clement & Co., Bethlehem, Pa.

NEW YORK—Warner-Quinlan Co., 26 Beaver street, has started work on improvements and enlargements in its petroleum refinery at Warners, N. J. It will include installation of new machinery to increase the capacity of the plant.

PORT WASHINGTON, N. Y.—Purty Boat Works plans to build a 1-story boat building plant. N. Purty, Bayview Colony, is president of the company.

SYRACUSE, N. Y.—Crouse-Hinds Co., H. Crouse, manager, plans to build a foundry. Gaggin & Gaggin, 720 University building, are architects.

BETHLEHEM, PA.—Lehigh university board of trustees has awarded the contract for an electrical and mechanical laboratory to Irwin & Leighton, 126 North Twelfth street, Philadelphia.

CRAFTON, PA.—Pittsburgh Water Heater

Resale Equipment News

AUCTION of machinery and equipment of the Ohio Body & Blower Co., Cleveland, set for May 23, includes machinery of the woodworking shop, machine shop, stamping and tinsmith shops, class finishing machinery and miscellaneous equipment. In the machine shop are included planers, shapers, radial drills, drill presses, lathes, grinders, tappers, milling machines and hacksaws. In the tinsmith shop are power presses, rotary and hand shears, power and hand brakes, box brakes, polishing stands, bumping hammers, and beaders. The sale will be without reserve and in piecemeal lots.

* * *

Bids will be received until May 18 by the quartermaster at Fort Niagara, N. Y., for waste material of various classes, including brass scrap, auto radiators and cast iron.

Sales Calendar

May 3—Property of American Refining Co., Wichita Falls, Tex., at receiver's sale.

May 18—Bids opened on waste material including cast iron and brass. at Ft. Niagara, N. Y.

May 23—Machinery and equipment of Ohio Body & Blower Co., Cleveland, to be sold at auction in piecemeal lots.

Co. has been incorporated with $5000 capital to manufacture and deal in water heating apparatus and equipment, by C. H. Bonner, Crafton.

JENKINTOWN, PA.—Pickwell & Krauss Inc. has been incorporated with $10,000 capital to manufacture and deal in mechanical and electrical equipment, by Royal L. Krauss, Elkins Park, Pa.

LANSDALE, PA.—Kirby Iron Works Inc. has been incorporated with $10,000 capital to manufacture and erect steel and ornamental iron work by Thornton L. Kirby, 1705 Champlost avenue, Philadelphia.

LOCK HAVEN, PA.—H. M. Fredericks Co., manufacturing electrical equipment, etc., plans to build a 1-story plant addition, 60 x 65 feet.

MARCUS HOOK, PA.—Viscose Co. of America Inc. will build a power plant, machine shop and other buildings in connection with its rayon mill at Meadville, Pa.

PHILADELPHIA—Acme Coppersmithing & Machinery Co., 1024 Ridge avenue, plans extensions and plant improvements.

PHILADELPHIA—C. Lennig & Co. Inc. Chemicals, F. Lennig, president, Richmond and Kennedy streets, plans to rebuild its two buildings damaged in a recent fire.

PHILADELPHIA—United Flying Club Inc. has been incorporated with $14,000 capital and 100 shares no par value stock to manufacture, deal in and operate airplanes, by Raymond O. Krause, 4935 Locust street, Philadelphia.

PHILADELPHIA — Allegheny Wagon & Truck Co. Inc. has been incorporated with $10,000 capital to manufacture, repair and deal in wagons, trucks, etc., by Samuel Mozocant, 1310 North Sixth street, Philadelphia.

PHILADELPHIA—Belgrade Wagon Works Inc., Belgrade and Cambria streets, manufacturer of auto bodies, has awarded the contract for a 1-story shop to Delrite Contracting Co., 1532 Berks street.

PHILADELPHIA—Pennsylvania Stutz Motors has been incorporated with 1500 shares no par value to manufacture, repair, deal in motors, engines, automobiles, etc., by Allen P. Crolius, Plymouth Meeting, Pa.

Studies Melting Practice

Although the cupola is the cheapest melting device for the production of molten iron under normal market conditions for pig iron, coke and clean cast-iron scrap, there are conditions under which expense of melting is not the major factor, so that certain other advantages possessed by the electric furnace sometimes make it more desirable, says the bureau of mines. A comprehensive investigation of the making of electric-furnace cast-iron has been completed by the bureau at its Northwest experiment station, Seattle, in co-operation with the college of mines, the University of Washington. The investigation involved a year's successful operation of a jobbing foundry making miscellaneous gray-iron castings from steel scrap. Detailed results of this investigation are given in Technical paper 418, entitled "Electric-Furnace Cast Iron," which may be obtained from the superintendent of documents, government printing office, Washington, at a price of 10 cents.

PHILADELPHIA—Tacony Nash Motor Co. Inc. has been incorporated with $50,000 capital to manufacture, repair, service and deal in motor vehicles, parts, etc., by J. Harry Conlen, 1210 Allengrove street, Philadelphia.

PHILADELPHIA—Scott Bank Equipment Co. has been incorporated with 20 shares no par value stock to manufacture and deal in safes and other bank protective equipment and devices by Charles E. Scott, 6202 Greenway avenue, Philadelphia.

PHILADELPHIA—Uhlmann Mfg. Co. has been incorporated with 50 shares no par value stock to manufacture and deal in machinery and equipment for the handling of milk products, by William H. Uhlmann, 2027 Chestnut street, Philadelphia.

PITTSBURGH—Pittsburgh Steel Drum Co., Oliver building, is building additions to its plant at Apollo, Pa., to double the present output of steel drums.

PITTSBURGH—Charles G. Hanny & Co. has been incorporated with $25,000 capital to manufacture and deal in structural and ornamental iron and wire products, by Charles G. Hanny, and Walter H. Stifel, 1034 Murray Hill avenue.

PITTSBURGH—Pittsburgh Heater Co. has been incorporated with $60,000 capital to manufacture and deal in boilers, radiators, fittings, appliances, etc., by R. E. Reuss, 1739 Chislett street, Pittsburgh.

PITTSBURGH—Joseph Kessler & Co. has been incorporated with $5000 capital to manufacture and deal in motor vehicles, accessories, etc., by Joseph J. Kessler, 1509 Federal street, N. S., Pittsburgh.

PITTSBURGH—Kenneweg Motor Sales Corp. has been incorporated with $5000 capital to manufacture and deal in cooling and radiating systems for automobiles, accessories, parts, etc., by C. H. Kenneweg, 1061 Evergreen street, Millvale, Pa.

READING, PA.—Reading Airplane Co. has been incorporated with $20,000 capital to manufacture, operate, repair and deal in airplanes, etc., by Allen K. Owen, 21 South Eleventh street, Reading.

WILKES-BARRE, PA.—Johnson Engineering & Mfg. Co. has been incorporated with $100,000 capital to design, construct, manufacture and deal in plants, engines, machines, etc., by A. J. Sordoni, Kingstown, Pa.

PAWTUCKET, R. I.—Hemphill & Co., manufacturer of knitting machinery, will establish a plant at 2625 North Lawrence street, Philadelphia, where it has leased space recently.

NEWPORT, VT.—Moore Mfg. Co. has been incorporated with $100,000 capital to manufacture and deal in machines and tools, by C. R. Moore, George F. Root and J. M. Bradley, all of Newport.

East Central

CHICAGO—United States Gypsum Co. has awarded the contract for its new plant in the Charlestown district, Boston. Handling equipment will be required.

CHICAGO—Garrison Bronze Corp., 400 East Ohio street, has been incorporated with $20,000 capital to operate a foundry, by H. C. Carlsen, W. C. Warren and B. C. Garrison.

CHICAGO—Reliance Hardware & Mfg. Co., 3036 West Chicago avenue, has awarded the contract for a 1-story plant, 35 x 135 feet, to William Hammerstroem, 3127 Fullerton avenue.

CHICAGO—Goddard Electrical Corp., 33 South Clark street, has been incorporated with $5000 capital to manufacture and deal in rotary converter eliminators, transformers, etc., by William Lister, J. B. Duggan and O. D. Buckles.

CHICAGO—John Kramer Alloy Corp., 2511 West Twenty-first street, has been incorporated with $10,000 capital to mine and deal in alloys and metals of all kinds by L. L. Becker, H. M. Korshak and Donald Korshak.

CHICAGO—American Lighting Equipment Co., 228 North LaSalle street, has been incorporated with 100 shares no par value stock to manufacture and deal in lighting equipment, signs, etc., by L. W. Kelly, A. E. Urban and H. C. Mullins.

CHICAGO—Metalloid Corp., 53 West Jackson boulevard, plans extensions and improvements to its mineral grinding and driving plant to increase the capacity, at 700 West Third street, Pueblo, Colo. Machinery and equipment, including motors, grinders, etc., will be required.

MOLINE, ILL.—Frank Foundries Corp., 125 Twenty-first street, contemplates building a 1-story foundry. W. A. Hageboeck is manager.

MOLINE, ILL.—William White Co., 701 Third avenue, F. Ainsworth, manager, plans to build a 1-story foundry addition.

ROCKFORD, ILL.—Ornamental Brass Shops, R. C. Lind, president, Tenth avenue and Tenth street, has awarded the general contract for a 1-story plant to Linden & Son, 1110 Tenth street. (Noted April 5.)

PEORIA, ILL.—King Machine Works, 506 Evans street, manufacturer of tools, dies and special machinery, will build a plant addition.

BLOOMINGTON, IND.—Indiana university, J. W. Cravens, secretary of the board of trustees, plans to remodel its boiler plant, to include boilers, mechanical stokers, coal and ash handling machinery, etc.

BATTLE CREEK, MICH.—Hill Piston Service

(*Continued on Page* 1196)

Distribution Survey to Be Undertaken

Washington, May 1.—A study of national marketing and distribution methods and problems in co-operation with large manufacturers and distributors which cover the entire country will be undertaken at once, Dr. Julius Klein, director of the bureau of foreign and domestic commerce has announced. John M. Hager, who during the period of organization has been director of the department's commerce division, will undertake this work.

Dr. Klein believes this study represents a vitally important link in connection with the regional marketing surveys which the department is conducting, in providing a wider prospective of national marketing problems and in tying the various surveys together as a unit.

Orders Heating Furnace of Continuous Type

The Mesta Machine Co. has placed a contract with the Rust Engineering Co., Pittsburgh, for the construction of a continuous furnace to be installed in conjunction with the continuous mill which it is building for the Timken Roller Bearing Co., Canton, O.

The furnace is to be equipped with Rust-type refractory tile recuperator and will have an output of 50 gross tons of billets an hour. The size billets to be heated will vary from 2 x 2 inches to 5 x 5 inches and will be 30 feet long. The heating hearth of the furnace will be 33 feet wide and 51 feet long. To give this high tonnage, billets will be charged in the side, pushed throughout the length of the heating hearth and discharged from the opposite side of the furnace directly into the first stand of the continuous mill. The fuel to be used on this furnace will be natural gas and a low consumption will be obtained due to the highly preheated air delivered by the recuperator.

Since alloy billets will be heated, combustion control and draft regulation equipment, built by the American Heat Economy Bureau, Pittsburgh, will be used on this furnace to reduce scale losses to a minimum.

Will Convene Jointly

As has been the custom for several years, the National Supply and Machinery Distributors association, the American Supply and Machinery Manufacturers association and the Southern Supply and Machinery Dealers association will conduct their annual meetings jointly May 15-17. These meetings will be held at Nashville, Tenn., and the headquarters will be at the Hermitage hotel. George A. Fernley, 505 Arch street, Philadelphia, is secretary of the National association; F. D. Mitchell, 1819 Broadway, New York, is secretary of the American association; and Alvin M. Smith, Smith-Courtney Co., Richmond, Va., is secretary of the Southern association.

Fluorspar Shipments Off 13 Per Cent

Fluorspar shipped from domestic mines in 1927 totaled 112,546 net tons valued at $2,034,728, compared with 128,657 tons valued at $2,341,277 in 1926, states the federal bureau of mines. For five successive years domestic shipments have declined. Imports from Germany have increased markedly, while those from Great Britain have decreased. The 1927 import total was 71,515 tons, a decline of 5 per cent from the record of 1926. Consumption in 1927 is placed at 176,200 tons, of which basic open hearth steel furnaces accounted for 138,000 tons. Stocks at the furnaces Dec. 31, 1927, totaled 85,000 tons.

Metal Branch To Meet

The seventeenth annual meeting of the metal branch of the National Hardware Association of the United States will be held in Boston May 3-4. Headquarters will be at the Copley-Plaza hotel. F. O. Schoedinger of Columbus, O., is chairman of the metals branch and will preside. An interesting program is being arranged and many subjects of importance in the sheet steel industry will be discussed.

Will Install Merchant Mill

Construction of a 16-stand 10-inch merchant mill of the continuous type has been authorized by the Carnegie Steel Co. for installation at its McDonald division, McDonald, O. A mill designed along similar lines is to be installed at the Fairfield works of the Tennessee Coal, Iron & Railroad Co., Fairfield, Ala.

Federal trade commission has dismissed its complaint against the Reading Saddle & Mfg. Co., Reading, Pa., on condition that it cease using the word "steel" to designate tools manufactured of metals other than steel.

Look to Japan for Wire Rod Business

New York, May 1.—Higher European prices on wire rods have placed Canadian and American makers in a more favorable position for Japanese business. Canadian makers have booked several thousand tons of rods for Japan and American makers are expected to get tonnage shortly.

Some years ago American makers of wire products enjoyed a good export business with Japan but the Japanese industry has recently met domestic needs. Japanese wire rod consumption in 1927 was 174,827 metric tons, of which imports accounted for 109,090 tons.

Japanese consumption of galvanized sheets is now at the rate of 250,000 metric tons annually, of which half is imported from Great Britain and Germany. Japan imports half of its sheet bar needs from Germany.

Will Heat Sheet Packs in Continuous Furnace

The Newton Steel Co., Youngstown, O., has placed a contract with the Rust Engineering Co., Pittsburgh, covering the construction of a pack heating furnace for use with its sheet mills at Newton Falls, O. This pack furnace will be the first of its kind for heating sheets and will have an output of 30 tons of sheets per hour shift. It will be 5 feet wide inside and approximately 47 feet long. The sheet pack will be carried through the furnace on Kathner-type disk rolls made by the Duraloy Co. Producer gas will be used as fuel. In conjunction with this furnace a recuperator will be installed to supply preheated air for combustion.

Plans Plant Improvement

Stockholders of the Newton Steel Co., Youngstown, O., have authorized a new $4,000,000 six per cent preferred issue. Outstanding preferred stock to the amount of $1,000,000 will be retired and about $1,250,000 will be used for plant improvement. The company recently ordered two roller bottom sheet normalizing furnaces, each 155 feet long, which will give it a complement of four units for normalizing purposes.

The American Society for Steel Treating, Cleveland, has just issued as additional data sheets for its *Handbook* a tentative recommended practice for the "Heat Treatment and Care of Sling and Crane Chain."

Light Bethlehem Sections Now Available

New York, May 1.—Wide flange beams and H columns are now being rolled by the Bethlehem Steel Co. in light sections known as joists and stanchions, to distinguish them from the heavier sections. The new stanchions can be used as columns or posts in connection with the joists, which are adapted for floor construction requiring moderate strength.

These lightweight sections, produced on a Grey mill and calculated in the same manner as the heavier Bethlehem sections, are designed to meet all building code requirements for the loads for which they are intended. Regular rolling schedules are being maintained.

A catalog just issued by the Bethlehem company describes the new joists and stanchions and sets forth the spacing, safe load and other engineering data required for their use. The new section known as the stanchion is a 6-inch wide-flange, H column which is produced in these weights, 15½, 18 and 20½ pounds per foot. These stanchions may be used as 6-inch beams as well as columns. The new sections alluded to as joists are light beam sections, four in number. They are 6, 8, 10 and 12 inches, and they weigh, respectively, 11, 14½, 16½ and 18½ pounds per foot. These sections may be used as structural beams or joists or as purlins for supporting roofs.

Stoker Sales Advance

Washington, May 1.—Sales of mechanical stokers in March increased greatly over February, statistics of the department of commerce show. Following are monthly comparisons:

	Stokers sold	Fire tube boilers	Water tube boilers
1926 total	1,361	289	1,072
1927			
March	115	25	90
April	77	22	55
May	97	16	81
June	153	49	104
July	136	42	94
August	160	60	100
September	104	48	56
October	95	37	58
November	67	26	41
December	83	29	54
1927 total	1,261	399	862
1928			
January	75	20	55
February	85	26	59
March	123	31	92

Babbitt Metal Gains

Washington, May 1.—Total apparent consumption of babbitt metal in March gained somewhat over February, according to department of commerce statistics. Further monthly comparisons follow:

	Total apparent consumption	Sold by manufacturers	Consumption by producers
	(Figures given in pounds)		
1927			
March	5,626,400	4,418,409	1,207,991
Tot. (3 mos.)	16,518,289	13,024,358	3,493,931
April	4,812,045	3,862,005	950,040
May	4,945,705	3,975,104	970,601
June	4,854,653	4,024,810	829,843
July	4,604,786	3,162,325	1,442,161
August	5,496,659	4,488,895	1,007,764
September	4,792,367	4,116,525	675,842
October	5,115,598	3,860,239	1,255,359
November	4,505,954	3,320,205	1,185,749
December	4,465,787	3,169,493	1,296,294
Total, 1927	60,111,843	47,003,959	13,107,884
1928			
January	4,928,517	4,034,352	894,165
February	4,470,368	3,443,694	1,026,674
March	4,927,634	3,903,071	1,024,563
Tot. (3 mos.)	14,326,519	11,381,117	2,945,402

Trackwork Shipments Are Down

Shipments of tee rail trackwork of 60 pounds a yard and heavier totaled 35,761 net tons for the first quarter of 1928, according to statistics just issued by the American Iron and Steel institute. This figure is lower than the 45,863 tons for the first quarter of last year, but exceeds somewhat the 28,759 tons shipped during the last quarter of 1927. Shipments for January, 1928, were 9332 tons; for February, 11,371 tons; March, 15,058 tons; and March one year ago, 19,216 tons.

Furniture Orders Down

Washington, May 1.—New orders for steel furniture in March declined somewhat from February, the department of commerce states in its monthly comparison:

	Business Group		Shelving	
1926	Orders received	Shipments	Orders received	Shipments
Total	31,393,171	31,429,140	7,340,351	7,837,017
1927				
March	3,021,915	3,080,931	689,964	690,788
Total, 3 mos.	8,680,207	8,498,064	1,924,174	1,854,401
April	2,750,877	2,849,536	621,888	677,745
May	2,381,369	2,528,672	686,144	585,397
June	2,369,244	2,519,512	638,485	657,927
July	2,091,804	2,040,209	534,592	564,744
Aug.	2,381,889	2,474,854	592,353	604,107
Sept.	2,367,857	2,218,602	607,905	531,154
Oct.	2,410,552	2,379,557	551,259	619,293
Nov.	2,476,230	2,856,181	574,763	590,764
Dec.	2,850,314	2,740,602	619,276	577,910
Total	30,760,343	31,105,789	7,351,122	7,264,282
1928				
Jan.	3,248,165	2,712,663	768,748	680,264
Feb.	3,295,861	2,908,527	741,310	681,999
March	3,283,329	3,169,351	841,098	831,607
Total, 3 mos.	9,827,355	8,790,541	2,351,156	2,193,870

Transue & Williams Steel Forging Corp., Alliance, O., is increasing its night force from 150 to 700 men, or only 200 less than the day force. Orders are sufficient for day and night shifts the rest of the year.

Molders' and Machinists' Hours Cut, Pay Raised

Washington, May 1.—Average full-time hours for foundries decreased 2.5 per cent from 52.4 per week in 1923 to 51.1 per week in 1927, according to a report just issued by the bureau of labor statistics. Average earnings per hour in all occupations combined, increased from 55.8 cents in 1923 to 62.4 cents in 1927. The increase was 11.8 per cent. Average full-time earnings per week increased from an index of 100 in 1923 to 107.5 in 1925 and to 109.1 in 1927. Between 1923 and 1927 full-time earnings per week increased 9.1 per cent. The increase in full-time earnings per hour is on account of the decrease in average full-time hours per week.

Full-time hours per week were a little lower in machine shops than in foundries. While earnings per hour in machine shops were almost the same each year as in foundries, the closeness is striking. In machine shops full-time hours per week decreased 1.4 per cent between 1923 and 1927, earnings per hour increased 11.8 per cent, and full-time earnings per week increased 10.2 per cent.

Coke Output in March Tops February

March production of by-product coke was 4,064,940 net tons and of beehive coke 449,000 tons, a grand total of 4,513,940 tons, according to federal bureau of mines. This compares with a total of 4,113,147 tons in February and 4,769,655 tons last march.

First quarter output of by-product coke was 11,685,209 tons, compared with 11,019,640 tons in the comparable quarter a year ago. Beehive coke output in the first quarter was 1,215,000 tons against 2,431,000 in the opening quarter of 1927.

March output of by-product coke included 2,096,086 tons in Pennsylvania, Buffalo district, Ohio and adjacent plants; 1,061,375 tons in Illinois, Indiana, Michigan and Missouri; and 346,718 tons in New England, New Jersey and eastern New York. Pennsylvania and Ohio accounted for 323,000 tons of the beehive total.

The Ohio Valley Improvement association has been invited by the Pittsburgh chamber of commerce and the Pittsburgh coal exchange to hold its next convention at Pittsburgh in June.

Construction and Enterprise

(*Continued from Page* 1193)

Co., 83 West Jackson street, has been incorporated with $100,000 capital to engage in the manufacturing and mechanical business, by W. C. Hill, 1903 East Michigan avenue.

CARSON CITY, MICH.—Florin Mfg. Co., Murt D. Smith, manager, will build and equip a new plant here. The company manufactures a washer.

DETROIT—Aircraft Products Corp. of America, 3-138 General Motors building, has been incorporated with $100,000 capital to manufacture and deal in aircraft and automotive products, by Ralph R. Irwin, 4414 Helen avenue.

GRAND RAPIDS, MICH.—Plans are nearing completion for rebuilding the pumping plant of the Grand Rapids Gas & Light Co., damaged in a recent explosition and fire.

GRAND RAPIDS, MICH.—Fleckenstein Pump Co., 326 Bond avenue, northwest, has been incorporated with $100,000 capital to manufacture and deal in gasoline pumps, containers, etc., by John F. Wagner, George E. Nichols and Russell L. Edison.

JACKSON, MICH.—Macklin Co., manufacturer of abrasive grinding wheels, has awarded the contract for two plant additions to the North-Moller Co. The new buildings will care for the increasing business of the company.

MARSHALL, MICH.—Lambert Machine Co. has been incorporated with $500,000 capital by A. P. Grohens, John R. Smyth and William A. Grohens.

ROYAL OAK, MICH.—Consumers Power Co. will build a 2-story plant here.

YPSILANTI, MICH.—Huron Gray Iron Foundry Co. will soon occupy its new plant now being built at 824 Railroad street.

AKRON, O.—Findlay Lime Products Co. has awarded the contract for plates and structural shapes for bins and conveyor supports to the Pittsburgh-Des Moines Steel Co.

BLUFFTON, O.—Bids will be opened May 10 on a municipal power plant. O. L. Barnes, 201 Lima Trust building, Lima, O., is engineer.

CLEVELAND—Aluminum Bronze Powder Co., 1823 Columbus road, has awarded the contract for a 1-story bronze powder plant to R. E. Nixon, 10006 Carnegie avenue.

CLEVELAND—Wellman Mfg. Co., 1381 East Fortieth street, manufacturer of brake linings, etc., suffered damage to its plant April 27 in a fire which followed an explosion.

CLEVELAND — Upson-Walton Co., West Eleventh street, has awarded the contract for a warehouse 80 x 220 feet to be built on Elmwood avenue to Austin Co.

CLEVELAND—Ohio Tool Co. has awarded the contract for a plant addition to Daugherty Construction Co., Cleveland. The building will add 2200 square feet to the present plant.

CLEVELAND—E. L. Freshley, 8714 Quincy avenue, manufacturer of wood and metal patterns, is contemplating moving to larger quarters, and will at that time be in the market for machinery and supplies.

CLEVELAND—Bishop & Babcock Mfg. Co., manufacturer of machinery and equipment, will move its fan and blower department to this city from Watertown, Mass. Contract for a building adjoining the main plant of Bishop & Babcock here, has been awarded to H. K. Ferguson Co., Hanna building. The plant will be 120 x 120 feet.

COLUMBUS, O.—Battelle Memorial institute, Otto C. Darst, 150 East Broad street, will build two 3-story research buildings, each 60 x 150 feet, to contain machine shops, laboratories, etc.

DAYTON, O.—Frampton Electrical Co., manufacturer of electrical equipment, plans to rebuild its plant damaged in a recent fire.

EAST LIVERPOOL, O.—Patterson Foundry & Machine Co. has awarded the contract for structural steel for a building, to an unstated independent fabricator.

FREMONT, O.—Fremont Foundry Co. has awarded the contract for an addition, 80 x 80 feet, to the Steinle-Wolfe Construction Co.

LORAIN, O.—Elyria Belting & Machine Co. plans to build a 1-story warehouse and plant here.

MARIETTA, O.—An addition to the city pumping and filtration plant is planned. M. C. Russell is city service engineer.

MILAN, O.—A manufacturer of brass automobile parts is contemplating locating here in the building formerly occupied by the Hoover Potato Digger Mfg. Co.

NILES, O.—Wilson Mfg. Co., manufacturer of wire products, will rebuild that part of its plant damaged in a fire April 15.

ZANESVILLE, O.—Federal Radiator Co. has awarded the general contract for repairing recent fire damage. (Noted March 15.)

CLINTONVILLE, WIS.—Topp-Stewart Tractor Co., manufacturer of tractors, and the Atlas Engineering Co., Milwaukee, manufacturer of conveyors, loaders, etc., have merged with the company taking the name of the Atlas company. The Milwaukee works will be moved to Clintonville where a plant addition 25 x 200 feet will be built.

Southern States

BIRMINGHAM, ALA.—Coal, Coke & Chemical Corp. has been incorporated by W. O. Arzinger, Crestline Heights.

WOODWARD, ALA.—Woodward Iron Co. has awarded the contract to the Semet-Solvay Engineering Corp., New York, for installation of a coke handling system, to include a wharf, screening and loading plant.

NEW ORLEANS, LA.—Menefee Motor Co. is establishing a used automobile rebuilding plant at 1620 Annunciation street. Chappel Menefee is president.

SHREVEPORT, LA.—Shreveport Eldorado Pipe Line Co. has awarded the contract for a pipe still, boiler house, tanks, etc., to M. W. Kellogg Co., 7 Dey street, New York.

JACKSON, MISS.—Mississippi Steel & Iron Co. has been incorporated by B. Lawrence, Elm and Grand avenues.

GUTHRIE, OKLA.—Atchison, Topeka & Santa Fe railroad, 80 East Jackson boulevard, Chicago, has awarded the contract for a 1-story machine shop, 42 x 147 feet, to be built here. H. W. Wagner, Topeka, Kans., is engineer of the eastern lines.

LAWTON, OKLA.—Southwestern Light & Power Co. is building a 33,000-volt transmission line from Addington to Duncan, Okla., and from Waurika to Ryan, Okla., and a 22,000-volt line from Clinton to Araphoe, Okla., Rebuilding of the distributing plant at Duncan is planned.

SPARTANBURG, S. C.—Standard Looms Inc., incorporated with $750,000 capital with Isaac Andrews, 519 East Main street, president, plans to build a plant for the manufacture of looms, parts, machinery, etc. The plant will consist of machine shops, assembling plant and foundry.

DALHART, TEX.—Dalhart Public Service Co. plans to enlarge its power plant, and will install a 500-horsepower engine, to increase its plant capacity.

DALLAS, TEX.—Federal Electric Co., Chicago, Charles Borland, general manager, plans construction of branch plant for manufacture of signs in Dallas or Houston.

GALVESTON, TEX.—Vulcan Iron Works has been incorporated by Robert A. Lyons Jr., 3211½ N. street.

LUBBOCK, TEX.—Texas Technical college, A. P. Horn, president, soon will award the

Machinery Output of France Growing

Expansion of France's machinery industry has been one of the marked developments of that country's post-war economic history. According to a report prepared by Assistant Trade Commissioner F. P. Waller which has just been issued by the commerce department's machinery division, French machinery output figured on a gold basis had tripled in 1926, compared with 1913. In the case of machine tools the value in the later year was four times that of the prewar period. French manufacturers were able not only to keep pace with a greatly augmented domestic consumption but to triple their sales in foreign markets.

Before the war, the bulletin shows, Germany was by far France's most important supplier of industrial machinery, its share amounting to more than 46 per cent of total French imports in 1913. In that year the share of the United States was something under 6 per cent, total imports of American machinery being valued around $3,000,000. In 1926 the value of French machinery imports from the United States had risen to $6,450,000 and its ratio of total imports to 18.4 per cent.

contract for a 2-story chemistry building, 106 x 233 feet.

ROCK SPRINGS, TEX.—Central Power & Light Co., San Antonio, plans a hydroelectric development on Rio Frio.

SAN ANGELO, TEX.—Iverson Tool Co., Tulsa, Okla., has established machine shop for repair of oil field tools at Wink, Tex., in Winkler County oil fields.

VERNON, TEX.—North Texas Hardware Co. has established a department for manufacture of sheet metal products with building 50 x 110 feet at 1417 Cumberland street.

WEIMAR, TEX.—Weimar Power & Light Co. has been incorporated by James A. Darby and B. F. Montgomery.

WICHITA FALLS, TEX.—Wichita Falls Foundry & Machine Co. has expanded its machine shop by a 31 x 85-foot addition.

BROOKNEAL, VA.—Clinchfield Sand & Feldspar Corp., Hearst tower, Baltimore, plans to install feldspar crushing and pulverizing plant.

RICHMOND, VA.—Petersburg Gas Co. interests contemplate locating coke ovens and gas plant in this district.

West Central

NEWTON, IOWA—American Gas Construction Co. will build a gas plant to furnish light, heat and power, at Wilmar, Minn.

ALBERT LEA, MINN.—Olson Mfg. Co., manufacturer of agricultural implements and tools, has awarded the general contract for a plant addition to Tapager Construction Co. The new building will be 74 x 124 feet. (Noted April 12.)

KANSAS CITY, MO.—Imperial Casket Co., T. R. Snyder, 1415 St. Louis avenue, president, has awarded the contract for a 2-story plant to W. K. Martin, Dwight building.

ST. LOUIS—International Oil Heating Co., 3939 Magnolia street, plans to build a 2-story warehouse at Spring and Park avenue.

ST. LOUIS—Kisco Boiler & Engineering Co. has been incorporated by William L. Kinsling, 3810 Olive street.

ST. LOUIS—St. Louis Tool & Mfg. Co. has been incorporated by John D. Young, George G. Albers and George D. Hart, 4920 Berthland road.

ST. LOUIS—American Pulverizer Co., manufacturer of pulverizing machinery, has moved into its new plant at 1249 Macklind avenue, with facilities for doubling the capacity.

Canada

CAP DE LA MADELEINE, QUE.—St. Maurice Valley Corp. is having plans prepared by its engineer, C. H. Jette, for a machine shop to be 2-story, 40 x 100 feet, brick construction.

ESTEVAN, SASK.—Montreal Engineering Co., Regina, Sask., is contemplating the construction of a power plant here.

Directors of the Sheffield Steel Corp., Kansas City, Mo., have declared a stock dividend of 33 1/3 per cent, payable July 1 to stock or record June 15. Earnings for first quarter show a substantial increase over the similar period last year, it was reported.

New Trade Publications

FLEXIBLE SHAFTS—N. A. Strand & Co., 5001 North Lincoln street, Chicago, manufacturers of flexible shafts and equipments, have issued a new catalog of 48 pages covering several new types of machines and attachments.

REGENERATIVE AIR PREHEATERS—Blaw-Knox Co., Pittsburgh, in a current bulletin explains its device for obtaining heated air without checkers. Illustrations show the method and accompanying text explains results.

BUCKETS—Owen Bucket Co., Cleveland, has issued a catalog of its line of buckets for digging and moving materials. It is illustrated to show various types of buckets and of their work in the field. Drawings show construction and specifications are presented.

CHAPLETS—Milwaukee Chaplet Co., 539 Thirty-first street, Milwaukee, has issued a handbook on chaplets and foundry riddles. The publication is well illustrated, showing the various types of chaplets with detailed information on dimensions. Prices also are given.

HIGH TEMPERATURE CEMENT—A current bulletin by the General Refractories Co., Philadelphia, is devoted to its cement for use with refractories used under high temperature. Analysis of the cement, reasons for its resistance and methods of testing are included.

MOTOR TESTING—A modern testing plant for electric motors is described in a bulletin by the Esterline-Angus Co., Indianapolis. In this plant motors moving past the testing station on a conveyor are tested and results recorded.

OVERHEAD CARRIERS—Modern Pouring Device Co., Port Washington, Wis., has issued a catalog on its overhead carrier systems and metal pouring equipment. It covers hand traveling cranes, monorail systems, jib and wall cranes.

STEEL CASTINGS—Castings machined to a degree that defects surely would be revealed are featured in a bulletin by the Nugent Steel Castings Co., Chicago. Castings for coal cutting machines form the subject and are illustrated.

CRANES—A bulletin covering its standard cranes has been issued by the Morgan Engineering Co., Alliance, O. It contains 40 pages and is fully illustrated. A new 30-ton trolley is featured. This trolley has a one-piece steel casting frame, all motions are worm-operated and roller bearings are used throughout.

HIGH PRODUCTION TOOLS—Since doubling plant facilities and machine equipment for producing its interchangeable high production tools the Eclipse Interchangeable Counterbore Co., Detroit, has issued a new catalog of its products. It is margin-indexed and illustrated, with ample specifications and data.

STARTING EQUIPMENT—Allen-Bradley Co., 286 Greenfield avenue, Milwaukee, has issued a series of bulletins and price sheets for its loose-leaf catalog. The bulletins cover various types of starting switches, automatic starters, a reversing switch, and a push button master station.

TURBINE LUBRICATION—In the current issue of *Lubrication*, a publication by the Texas Co., New York, the steam turbine is treated exhaustively from the standpoint of efficient lubrication. Qualities of oil necessary for this service are described. Equipment, such as oil filters, governors and coolers are illustrated.

ELECTRICAL APPLIANCES—General Electric Co., Schenectady, N. Y., has issued recent bulletins on the following equipment: Magnetic controllers, automatic throw-over panels, direct current motors, single stage centrifugal air compressors, adjustable speed direct current motors, arc suppressor plates and enclosed starting rheostats.

GRINDERS—Rotor Air Tool Co., 5905 Carnegie avenue, Cleveland, has issued a booklet describing its portable pneumatic grinders and drills. The publication is well illustrated with reproductions of photographs of the equipment in operation. Considerable information is given on the construction and operation of the various types of tools.

ELECTRICAL EQUIPMENT—The Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., has issued a catalog of electrical supplies for 1928-1930. This catalog presents the electrical and mechanical features and application information for all supply apparatus and appliances manufactured by the Westinghouse Company, and in addition describes and illustrates a representative list of large motors and generating apparatus. The new catalog contains about 1200 pages.

Discounts and Extras

Steel Pipe

Pittsburgh and Lorain basing discounts, jobber's carloads.

Evanston, Ill., and Indiana Harbor, Ind., take differential 2 points less discount.

Chicago takes differential 2½ points less than Pittsburgh-Lorain basis.

Butt Weld

	Black	Galvanized
⅛-inch	45	19½
¼ and ⅜-inch	51	25½
½-inch	56	42½
¾-inch	60	48½
1 to 3-inch	62	50½

Lap Weld

2-inch	55	43½
2½ to 6-inch	59	47½
7 to 8-inch	56	43½
9 and 10-inch	54	41½
11 and 12-inch	53	40½

REAMED AND DRIFTED

Butt Weld

1 to 3-inch	60	48½

Lap Weld

2-inch	53	41½
2½ to 6-inch	57	45½

EXTRA STRONG—PLAIN ENDS

Butt Weld

⅛-inch	41	24½
¼ and ⅜-inch	47	30½
½-inch	53	42½
¾-inch	58	47½
1 to 1½-inch	60	49½
2 to 3-inch	61	50½

Lap Weld

2-inch	53	42½
2½ to 4-inch	57	46½
4½ to 6-inch	56	45½
7 to 8-inch	52	39½
9 and 10-inch	45	32½
11 and 12-inch	44	31½

DOUBLE EXTRA STRONG

Butt Weld

½-inch	42	32½
¾ to 1½-inch	45	35½
2 to 2½-inch	47	37½

Lap Weld

2-inch	41	32½
2½ to 4-inch	43	34½
4½ to 6-inch	42	33½
7 to 8-inch	38	25½

(Note—Large jobbers obtain additional preferential discounts of 1 and 5 on black and 1½ and 5 on galvanized. Extra 5 per cent granted in the 4th quarter 1927 and 1st quarter 1928 discontinued April 2, 1928.

Wrought Iron Pipe

Pittsburgh basing discounts, jobbers' carloads. Individual quotations made on delivered basis.

THREADS AND COUPLINGS

Butt Weld

¼ and ⅜-inch	+11	+39
½-inch	22	2
¾-inch	28	11
1 to 1½-inch	30	13

Lap Weld

1¼ and 1½-inch	Upon application	
2-inch	23	7
2½ to 3-inch	26	11
3 to 6-inch	28	13
7 to 12-inch	26	11

PLUGGED AND REAMED

Two points less than above

EXTRA STRONG, PLAIN ENDS

¼ and ⅜-inch	+19	+54
½-inch	21	7
¾-inch	28	12
1 to 1½-inch	30	14

Lap Weld

2-inch	23	9
2½ to 4-inch	29	15
4½ to 6-inch	28	14
7 to 8-inch	21	7
9 to 12-inch	16	2

DOUBLE EXTRA STRONG

Butt Weld

½-inch	+47½	+59½
¾-inch	+28	+40
1-inch	+34	+46
1¼-inch	+28	+40
1½-inch	+27	+39

Lap Weld

2 and 2½-inch	+18	+25
3 and 4-inch	+ 8	+17
4½ to 6-inch	+ 9	+18
8-inch	+12	.....

(Note—Large jobbers obtain additional preferential discounts of 1, 5 and 5 on black and 1½ and 5 on galvanized.)

Boiler Tubes

Pittsburgh carload discounts. Less carloads 4 points less

STEEL (Lap Weld)

2 and 2¼-inch	27 off
2½ and 2¾-inch	37 off
3-inch	40 off
3¼ to 3¾-inch	42½ off
4 to 13-inch	46 off

(Note—Additional discounts of 5 to 7 extra 5 per cents now being given.)

CHARCOAL IRON

1½-inch	+18
1¾-inch	+ 8
2 and 2¼-inch	2 off
2½ to 3-inch	7 off
3¼ to 4½-inch	9 off

(Note—Additional discounts of one 10 to two 10's and one 5 now being given.)

SEAMLESS COLD DRAWN

1-inch	56 off
1¼ and 1½-inch	48 off
1¾-inch	32 off
2 and 2¼-inch	27 off
2½ and 2¾-inch	35 off
3-inch	41 off
3¼ and 3½-inch	43 off
4-inch	46 off
4½, 5 and 6-inch	41 off

SEAMLESS HOT ROLLED

2 and 2½-inch	30 off
2½ and 2¾-inch	38 off
3-inch	44 off
3¼ and 3½-inch	46 off
4-inch	49 off
4½, 5 and 6-inch	44 off

(Note—Additional discounts of 2 or 3 extra 5 per cents now being given.)

SEAMLESS STEEL MERCHANT BOILER TUBES

Extras:

Add $8 per ton for more than four gages heavier than standard and add 10 per cent to theoretical weight.

Add 5 per cent for lengths over 24 feet and not over 26 feet.

Smaller tubes than 1-inch and lighter than standard gage to be sold at mechanical tubing list and discount.

Intermediate sizes and gages not listed above take price of next larger outside diameter and heavier gage.

SEAMLESS STEEL MECHANICAL TUBING

Base Discounts on New List July 1, 1925

Carbon 0.10 to 0.30 per cent.....50 to 55 off
Carbon 0.30 to 0.40 per cent.....45 to 50 off

SEAMLESS STEEL LOCOMOTIVE AND SUPERHEATER TUBES

Net prices per foot f.o.b. Pittsburgh

Outside diameter	Gage	Price
2-inch	12-gage	14¼c
2-inch	11-gage	15c
2-inch	10-gage	16c
2¼-inch	12-gage	16c
2¼-inch	11-gage	17c
2¼-inch	10-gage	18c
3-inch	7-gage	33c
5⅜-inch	9-gage	50c
5½-inch	9-gage	52c

Plus usual extras for forming and for long lengths over 18 feet and for commercially exact lengths.

Plate Extras

BASE

Rectangular plates, tank steel or conforming to manufacturers' Standard Specifications for structural steel, dated Nov. 24, 1922, or equivalent, ¼-inch thick and over on thinnest edge, (except for ¼-inch or 72 inches wide when ordered to weight in pounds per square foot—see width and gage extras), 100 inches wide and under, down to but not including 6 inches wide, 5 feet 0 inches long up to published limit in length but not over 80 feet 0 inch, are base. Extras per pound for width or diameter.

All Plates Rectangular or Otherwise

¼-inch thick and heavier, but not less than 11 pounds per square foot, if ordered to weigh—

Over 100 inches to and including 110 inches	.05c
Over 110 inches to and including 115 inches	.10c
Over 115 inches to and including 120 inches	.15c
Over 120 inches to and including 125 inches	.25c
Over 125 inches to and including 128 inches	.50c

Plates less than ¼-inch or lighter than 11 pounds per square foot.

Over 72 inches to and including 84 inches	.10c
Over 84 inches to and including 96 inches	.20c
Over 96 inches to and including 100 inches	.30c
Over 100 inches add .35c to width extras for plates ¼-inch thick and heavier	

GAGE

Plates not Exceeding 72 Inches Wide

Plates less than ¼-inch gage, to and including 3/16-inch; or lighter than 10.2 pounds per square foot, to and including 7.65 pounds per square foot .20c

Plates over 72 Inches Wide

Plates less than ¼-inch gage, to and including 3/16-inch; or lighter than 11 pounds per square foot, to but not including 7.65 pounds per square foot, .20c

Plates ordered 7.65 pounds per square foot .30c

QUALITIES

Pressing steel	.10c
Flange steel (boiler grade)	.15c
Ordinary firebox steel	.20c
Stillbottom steel	.30c
Locomotive firebox steel	.50c
Marine steel	1.50c

Hull materials subject to U. S. Navy Dept. Specifications for Medium or Soft Steel .10c

High tensile hull steel subject to U. S. Navy Dept. or equivalent specifications 1.00c

Boiler steel subject to U. S. Navy Dept. Specifications, classes A and B. 1.50c

Hull plates to hull specifications, required to stand cold flanging, take extra for flange steel.

Floor Plates

Checkered plates 1.75c

Checkered plates are not furnished to sketch and are rolled from "Stock Steel" only. No physical tests will be made on checkered plates.

INSPECTION

Mill inspection .....No extra

Charles for other inspection, such as Lloyd's or American bureau of shipping, will be made by inspection bureau direct to buyer.

CUTTING

LENGTH OR DIAMETER

All Plates, Rectangular or Otherwise

Five feet and over up to published limit of length, but not over 80 feet....No extra

Under 5 feet to 3 feet inclusive....	.10c
Under 3 feet to 2 feet inclusive.....	.25c
Under 2 feet to 1 foot inclusive.....	.50c
Under 1 foot	1.55c
Over 80 feet to 100 feet inclusive....	.10c

Over 100 feet add .25c plus .05c for every additional 2 feet or fraction thereof.

Regular Sketches

With not more than four straight cuts. (Including straight taper plates)

Additional extra .10c

Irregular Sketches

With not more than four straight cuts. (Sketches cannot be sheared with reentrant angles)

Additional extra .20c